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MEDICAL CLINIC:

BY G. ANDRAL,

PROFESSOR OF THE FACULTY OF MEDICINE OF PARIS, MEMBER OF THE ROYAL ACADEMY OF MEDICINE, ETC., ETC.

VOL. I.

DISEASES OF THE ABDOMEN.

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MEDICAL CLINIC:

DISEASES OF THE ABDOMEN.

BY

G. ANDRAL,

PROFESSOR TO THE FACULTY OF MEDICINE OF PARIS, MEMBER OF THE ROYAL ACADEMY OF MEDICINE, ETC., ETC.

CONDENSED AND TRANSLATED, WITH OBSERVATIONS,

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INTRODUCTION.

BY THE TRANSLATOR.

The importance of the study of clinical medicine is now so universally acknowledged, that it appears altogether unnecessary to occupy the reader's time or attention by pointing out to him its various and manifold advantages.

This study may be considered as the complement of Medical Education, it being neither more nor less than the application of all other branches of the healing art to that which is their ultimate end and aim, namely, the prevention, alleviation, and cure of diseases. In order thoroughly to understand a disease, it is absolutely necessary to have seen it, to have carefully watched it, and traced it through its different stages during life, and to note the vestiges which it may have left behind after death. After this method of studying disease, which we hold to be absolutely indispensable, accurate descriptions of disease coming from men on whose judgment, attainments, and experience, reliance may be placed, hold the next rank: good descriptions of disease teach us the art of observing for ourselves, they correct our errors, and direct our attention to objects which might otherwise have escaped us. These descriptions, when consulted after we have devoted ourselves for some time to clinical observation, engrave the phenomena which we have witnessed more deeply in our memory. Again, however, we would impress it on the student's mind — they never can be substituted for the actual observation of disease at the bed-side. In order to become sound physicians, nature herself must be interrogated — that is *the* book which must be attentively perused.

For the purpose of assisting more particularly the junior student in his clinical studies, we shall offer a few observations principally in reference to the important subject of diagnosis, the method of examining a patient, and the more striking phenomena of semeiology.

By *Diagnosis* is understood the knowledge of those characters which serve to distinguish diseases from one another. The exact appreciation of the several organic alterations, of the symptoms, and of the local and general signs to which these alterations give rise, chiefly constitutes diagnosis. This, whilst it is one of the most important branches of pathology, and without doubt one of the most difficult, is also the only basis on which we can found a just prognosis and rational treatment.

To assist in forming the diagnosis, several methods are occasionally employed. The first, and certainly the most simple, consists in directly referring the symptoms observed to the lesion of that organ or tissue which those symptoms seem to point out as the seat of suffering. Thus, when a patient presents himself with difficulty of breathing, cough, deep-seated pain, dulness of sound, and crepitous râle on one side of the chest, sputa streaked with blood, etc., we at once pronounce the lung to be the seat of the disease. If the patient should die, the *post-mortem* examination confirms this part of the diagnosis, and completes it by disclosing the nature of the lesion. If the patient survive, as identical

symptoms cannot depend on different lesions, and *post-mortem* examination has shown, under similar circumstances, that the above mentioned symptoms invariably accompany such a lesion of the lung, the diagnosis still has all the certainty that can be desired.

Another method applies to cases in which the symptoms being slight are not easily interpreted; when the differences are not easily appreciated between those which arise directly from the organ affected, and those which are merely sympathetic; this includes the greater number of chronic diseases. This method consists in interrogating all the organs one after another, until we come to that which accounts sufficiently for all the symptoms observed. Here we commence by a rapid examination of the parts contained in the head, chest, and abdomen; and in this first review we exclude all those organs and tissues of whose healthy condition we entertain no doubt, and we note all those which we at all suspect to be the seat of any lesion. This first process being concluded, we proceed to a second examination, which is directed solely to the tissues or organs suspected. We then make a new selection among these, or, more properly speaking, we again exclude; this exclusion affects those whose suffering is evidently merely sympathetic, still reserving those of which we have any doubt for a still stricter examination. Lastly, in a third process we remove successivoely all those tissues, the lesion of which does not account sufficiently for all the symptoms observed, and thus we come to the real seat of the disease; should there be any difficulty then in deciding between two organs, it is more than probable that there is a simultaneous lesion of both.

In the practice of medicine a correct diagnosis necessarily tends to a rational treatment — in order to form such a diagnosis, it is necessary to know the organs and functions in their normal state; without this knowledge we cannot appreciate the changes induced by disease. Anatomy and physiology are, therefore, preliminary and indispensable.

By the *symptom* of a disease is meant an alteration of some parts of the body, or of some of its functions, produced by a morbific cause, and perceptible to the senses. From the alteration of the function we infer an alteration in the organ to which the discharge of such function was confided. When we have ascertained what organ is the seat of lesion, and what the nature of the lesion is, the symptom is converted into a sign. The senses alone are sufficient to make us perceive the symptoms; persons wholly unacquainted with medicine may ascertain them. There is no one, for instance, who cannot perceive what a pain of the side is, with dyspnœa, hæmoptysis, &c.; it is only the physician who can tell what these symptoms signify; *i. e.*, can convert them into signs.

The study of mere symptoms, without endeavouring to ascertain the signification of these symptoms, has been at all times productive of much mischief in the treatment of disease. Not long since, medical men, destitute of the light of pathological anatomy, considered mere groups of symptoms as diseases, against which they directed their therapeutic agents. This method, even at the present time, finds many staunch abettors. To illustrate the absurdity of this method, we shall suppose a case of paralysis. A little time ago it was not known, and several seem not yet to know, that paralysis is but a symptom of an alteration in the brain or its appendages. Pathological anatomy has proved this point beyond all doubt. Well! what was the practice adopted in paralysis? Frictions and rubefacients were employed to restore sensation to the paralysed limb. So far, if no good was done, no injury resulted from the practice. But some one took it in his head to give nux vomica to an animal; the hind parts of the animal were observed to be convulsed after the employment of this drug; it was thence inferred that the medicine would perform wonders in paraplegia. It was afterwards given in cases of hemiplegia, and was observed to produce

convulsions in the paralysed limbs, and forthwith it was expected that it would restore motion to these limbs. Had physicians known that paralysis was but a symptom of an acute or chronic local affection of the brain, they would have seen that the means proposed to give motion to the paralysed limbs, must necessarily act on the diseased portion of the encephalon; and in thus causing the diseased part to act, they rather prevented than promoted its cure. They would have seen, that to make the limbs perform motion in this case, was just the same as rubbing the two ends of a fractured bone one against the other, by way of consolidating the fracture. Numerous other instances might be adduced of the absurdity and mischief resulting from confining attention exclusively to the symptoms.

MODE OF INTERROGATING A PATIENT.

Nothing is more embarrassing to a young and inexperienced physician than the office of examining a patient. It is beyond all doubt one of the most important parts of his profession, one without which he cannot attain a sure diagnosis, and consequently cannot adopt a rational mode of treatment. This, is, however, a branch too much neglected in the education of medical men. There is often great incoherence and confusion observable in their questions. These questions are frequently totally mal-apropos, and devoid of all connection; such persons oftentimes confound objects the most dissimilar, and keep separate those that bear the strongest resemblances. These advantages arise from a want of order and method. The mode of taking a case, as it is closely connected with that of examining a patient, participates in all the above defects in the hands of the inexperienced.

The first thing that should be done is, to examine the exterior — the physiognomy first should engage our attention; by this we obtain some idea of the patient's age and strength, state of his mind, circumstances of prime importance in establishing our prognosis and mode of treatment. This first examination should not be confined to the head; the physician should extend his examination to all the regions of the body, in order that he may be able to judge of the form of the body, its size, colour, eruptions, if there should be any. Such examination should be made, where it can be done with convenience. The necessity of minutely examining the exterior of the body, more particularly in the part which may be the seat of pain, has been very well pointed out by M. Rostan, in the following case: — An aged woman was admitted into the hospital under his care: she complained of an acute pain in the abdomen, towards the left iliac fossa. Face flushed, skin hot, pulse strong and frequent; tongue dry, considerable thirst; digestive functions natural, little or no change in the other organic or animal functions. The abdominal pain was very sensible on pressure, and when she moved. His diagnosis was as follows: the phenomena of reaction (strength and frequency of pulse, flushed face, thirst, &c.) indicated an acute state, and one, no doubt, of an inflammatory character. The local sign showed, that the abdomen was the seat of the disease; but the digestive functions were natural, so that it was not in the digestive organs that the inflammation was seated. The slightest pressure gave pain, which showed that the disease was superficial. Motion was painful, the organ of motion was therefore affected; *the abdominal muscles therefore must be the seat of disease.* After forming this diagnosis, he prescribed for the patient accordingly, and then left her, when one of the pupils who had raised the patient's chemise for the purpose of examining the seat of pain, followed him, and informed him that it was a case of zona. This lesion made us feel more than ever, says M. Rostan, the necessity of using our senses, the only means of positive instruction. Another case is mentioned by the same author in proof of the same theory. A

patient had fallen on a pointed body, and felt considerable pain in the left side of the chest; there was cough, accompanied with great pain; some expectoration, sputa streaked with blood, and symptoms of well-marked reaction. The pain was very acute to the touch. One of the pupils examined the patient, and formed his diagnosis thus: the cough and spitting of blood prove that the respiratory organs, and probably the lungs, must be the seat of the disease. The very acute pain of the side, which was increased both by pressure and by respiration, might be, to be sure, in the thoracic parietes; but the strength and frequency of the pulse, the redness of the face, the heat of skin, thirst, &c., indicated a more deep-seated lesion, (percussion could not be employed on account of the acuteness of the pain; a crepitous râle was detected by the stethoscope). The pupil's diagnosis was *pleuro-pneumonia.* This certainly was reasoning from very correct principles; but what was the real state of the patient? There was *a fracture of the ribs.* Had the state of the exterior been examined, this error would have been avoided.

The first question to be addressed to a patient should be — "Where have you any pain?" This question, simple as it may appear, is far the best. Patients are very much disposed to give an opinion on the nature of their own case. One will tell you that it is his nerves that are affected; another, that he is troubled with the bile. If, instead of putting the question as is above recommended, the physician were to ask the patient — "What ails you?" he may be sure to receive an answer that will leave him as much in the dark with respect to the nature of the patient's disease as he was before he put the question; whereas, by asking him where his ailment lies, the patient seldom fails to point out the function and organ diseased. Even with this precision in conducting our examination, it is oftentimes difficult to prevent patients from wandering into rigmarole accounts concerning their complaints; frequently, too, they take one organ for another; they, for instance, complain of a pain in the stomach, when the seat of disease is in the chest. It is useful, in order to avoid all misunderstanding, to bid them lay their hand on the part where they feel pain. The next question should be — "How long are you ailing in this way?" By this you ascertain whether the disease be acute or chronic. If we discover that the disease is of recent occurrence, we then confine our attention solely to the consideration of acute diseases, excluding altogether chronic diseases of the same organ. We shall take an example for the sake of illustration. The acute diseases of the brain are: — congestion, inflammation of the membranes, that of the cerebral substance, hemorrhage, ramollissement. The chronic diseases are: — tubercles, cancer, acephalocysts, osseous tumours of the parietes of the cranium, fungus of the dura mater, general affections of this organ, such as hysteria, epilepsy, &c., &c. Well, if the disease is only of a few days' standing, we shall conclude that it is acute, and shall lay aside all those now enumerated in the chronic list; we shall then confine our attention to congestion, meningitis, encephalitis, apoplexy, &c., the diagnostic signs of which we shall soon ascertain.

Now, when we know what the function is that has been injured, we must follow up its examination, until we have passed in review all the morbid phenomena which it may present. When this examination is completed, we pass on to the function or organ which exercises the most marked influence over that which has been just examined, or which receives the most marked influence from it. We then pass in review, one after another, all the principal organs and their general functions. Whenever an organ is seriously affected, it reacts on the other organs, disturbs their functions, and sometimes their structure. How are we to discover these consecutive alterations, unless by examining all the organs and all their functions?

When we have examined the patient in the manner now described, we next

endeavour to ascertain the state of the different organs contained in the thoracic and abdominal cavities, by means of *percussion* and *auscultation*. For a description of the mode of practising these instruments of clinical investigation, we must refer to the works expressly written on these subjects.

There are several circumstances which may prevent the physician from examining his patient in the manner now described. He will then be obliged to have recourse to the statements of those in attendance on the patient; he must make use of his own senses; the sense of sight will make known to him all the phenomena regarding the external appearance of the patient; by touch he can discover the temperature, consistence, and sensibility of most of the superficial and deep-seated parts, the state of the circulation, &c.; by his ear he can ascertain all the various sounds produced by percussion, or discoverable by the stethoscope. We shall cite an example, to show that the difficulty of ascertaining the seat and nature of a disease, even in cases wherein serious obstacles may present themselves, is not so great as may appear at first sight. Let us suppose an example.

A patient is presented to us in a state of complete loss of consciousness. It is altogether impossible to obtain from him any information with respect to his present feelings, or the previous history of the case. We merely learn from his friends, and those around him, that, up to the period of his illness, he was in the enjoyment of perfect health, and that the present attack was sudden. Having no other sources of information as to the nature of the case, we call in our senses and reason to our aid. The former tell us that the patient may be about sixty years of age; that he is of a strong make; that the several cavities are large, and his limbs well developed; that his face is flushed; that the eyes are prominent, and that the temporal and carotid arteries beat with violence; that he is frothing at the mouth; that the extremities are cold; that one side of the body is deprived of motion; that the pulse is strong and hard; that he has vomited, and that he has passed his fæces involuntarily; that the breathing is stertorous. What is to be done in this case? Do we not see, in a moment, what the disease is, its nature, seat, extent, and the indications of treatment? Let us now reason on the case. There is complete loss of consciousness. What are the diseases which gave rise to this symptom? Diseases of the heart, of the lung, and of the brain. Is the heart the seat of the disease at present? No; for the patient was very well before the present attack, and the circulation was not disturbed. Is it syncope? No; for the face is flushed, and the pulse is strong and full. Is it asphyxia? No; for the respiration and circulation still exist, and there was no asphyxiating cause. The brain, therefore, must be the organ involved. We have now placed the disease in the brain, but the diseases of this organ are numerous. The disease evidently is not chronic, for the patient was very well a little before the attack. Thus, then, by this single trait, we have got rid of one-half the cerebral affections. We now have left for consideration arachnitis, cerebral congestion, softening, and hemorrhage; it cannot be congestion, for congestion is a general disease, and here there are local phenomena: nor can it be arachnitis, for the same reason. It must, therefore, be either softening or effusion; but the progress of softening, which also produces hemiplegia, is slow and gradual, and here the disease comes on suddenly. The case, therefore, must be one of a cerebral hemorrhage, or apoplexy. Thus, then, have we come, by the mere application of the senses, and by reasoning, to ascertain the nature, seat, and extent of the disease which we have before our eyes, and that with almost mathematical certainty.

After examining the patient in this way, it next remains for us to go back to the previous circumstances which might have acted as causes, or which might furnish some useful data for the treatment. We should inquire to what cause the patient attributes his disease; whether the disease be hereditary or acquired;

whether the present is the first attack of it, or whether it appeared on a former occasion. Lastly, we should direct attention to the age, sex, constitution, idiosyncrasy, habits, and profession of the patient.

When the disease terminates fatally, the task of the clinical observer is not yet finished. This is the moment when nature will either confirm the accuracy of his diagnosis, or prove its incorrectness. The autopsy requires the same attention from the physician as the examination of the patient did before death.

As the same method of examination may not always apply in all cases, we shall, for the benefit of the junior student, annex the plan of examination recommended by M. Louis; it is as follows:

Before the clinical student inquires into the symptoms in any case, he should inquire into the *age* and *profession* of the patient; into his *usual state of embonpoint* or *emaciation*, of *strength* or *weakness*, of *health* or *disease;* of the *affections* under which he laboured before the present; of the *natural conformation* of his body.

The reasons for these inquiries are obvious.

When these points are ascertained, we should next proceed to ascertain the period when the disease commenced; as, without knowing this, we could not learn with certainty its progress and duration, nor should we have all the elements of the prognosis and treatment. It should be ascertained whether, before the time at which the patient states his disease commenced, he was in perfect health, whether all the functions were duly performed: a strict inquiry into this particular is indispensable among persons in the humbler walks of life, since they generally date the commencement of their disease from the time at which they were forced to give up their ordinary occupations. By way of illustrating the necessity of this inquiry, let us suppose a case of pleuritis, the first symptoms of which commenced only a few days before the patient came under the examination of the physician; let us suppose that the patient states that he was in perfect health before this pleuritic attack; here the prognosis will of course be favourable, as experience shows us that pleuritis, attacking a person previously in good health, almost always terminates well. But, if we ascertain by our inquiries that the patient, long before the pleuritic attack, was harassed with a cough; if we find, moreover, that this cough is connected with tubercles in the lungs, the prognosis and treatment will be seriously modified.

Having ascertained the time when the disease commenced, we then come to the *consideration of the symptoms*. These should be studied one by one in the exact order in which they appeared from the commencement of the disease to the period when the patient comes on under our examination.

Pathological Anatomy should now be brought in to assist the other methods of examination. The use of pathological anatomy is not only to discover the seat of diseases, to develop their nature, and unravel their complications; by it also we arrive at a knowledge of many of the laws observed by disease, knowledge which can only be obtained from an attentive examination of all the organs, whenever the patient has died of the disease. We now know, for instance, that, after the age of fifteen, whenever we find tubercles in any organ, we are sure they also exist at the same time in the lungs. It is evidently to pathological anatomy we are indebted for our knowledge of this law.

Having now ascertained the state of the functions, and learned the symptoms which have occurred from the commencement of the disease up to the period at which the patient came under our inspection, we must next endeavour to ascertain the value of those symptoms, we must convert these symptoms into *signs*, in order to arrive at the knowledge of the organ affected, and of its pathological state. This becomes the more necessary, as there are cases in which the symptoms do not, either at the commencement of the disease, or during a con-

siderable portion of its progress, indicate an appreciable alteration of any organ whatever. This conversion of symptoms into signs is to be accomplished by carefully noting the exact series and precise connection of these symptoms; the method of exclusion, or remotion, also is sometimes to be employed; that is to say, we attain a knowledge of the organ affected, not so much from any serious disturbance of its peculiar functions, as because whilst the other viscera gave no sign of any appreciable alteration, that viscus alone should be considered as the seat of the disease whose functions are in any way altered, even though such alteration may not be very marked.

Having now ascertained the organ affected, our next object is, to learn the *nature of the disease*, of which it is the seat. The difficulty of solving this question is not inconsiderable; this difficulty is in a great measure occasioned by the want of anatomical examinations, carefully conducted at different periods of the same disease. It is chiefly by the aid of pathological anatomy, by comparing the symptoms with the lesions corresponding to them, that this question can be solved.

When we have now ascertained the symptoms of the disease, the organ which is its seat, the nature of the disease, and its probable duration, the *prognosis* presents itself to our consideration. In forming the prognosis we must, in addition to the above data, take into consideration the degree of fever present, the age and strength of the patient.*

* For much valuable information on the subject of Clinical Instruction, we refer the student to Dr. Latham's "Lectures on Subjects connected with Clinical Medicine" (Published in the *Select Medical Library*).

DISEASES OF THE ABDOMEN.

FIRST BOOK.

DISEASES OF THE DIGESTIVE TUBE.

The changes found after death in the digestive tube are connected with two great series of changes of functions. In one of these series, the functional disturbances are principally directed towards the digestive passages; there the symptoms are, there also the entire disease evidently is. In the other series the case is no longer the same: the predominant functional disturbances no longer have their site in the digestive apparatus, though in this apparatus the anatomical lesion still resides; and whilst, with respect to the stomach and the intestines, the symptoms observed are but slightly marked, other organs, and principally those of circulation and innervation, present disturbances as serious as they are varied, in the several acts which they are commissioned to perform. In such a case we cannot be led by the mere symptoms to seek in the digestive passages for an alteration to explain them. Thus, for a very considerable time the existence of this alteration was not even doubted; and when it was discovered, many persons still hesitated to admit that it alone was the cause of all the symptoms, and that it alone constituted the entire disease; so little proportion did there appear to them to be between its intensity and the severity and universality of the functional disturbances. They then gave to these diseases the name of essential *fevers*. To discuss and solve, as far as is possible by the help of facts, the important questions which the study of these diseases has recently raised, such is the object which is to occupy us in the following section. We shall then have to direct our attention to diseases of the first series, or those which recognise the morbid state of the digestive apparatus for their sole commencement and only element. The state of these diseases, or at least of some of them, will be the object of a second section.

SECTION I.

OBSERVATIONS ON FEVERS.

The diseases traced in the observations included in this section are those which were for a long time described by the name of essential fevers, and which are designated in the *Nosographie* of Pinel by the terms inflammatory, bilious, mucous, adynamic, and ataxic fevers. It was reserved for M. Broussais to change the face of science on this point, as well as on many others.

Since the publication of the *Examen of Medical Doctrines*, numerous works have appeared in support of the doctrine of the localisation of fevers. These works, which all are indebted for their appearance to those of M. Broussais, have still further proved the important part which inflammations of the digestive

tube perform in the production of what are called essential fevers. But they have at the same time put some restrictions on the opinions expressed by M. Broussais, regarding the seat and nature of these fevers. Thus the valuable researches of M. Bretonneau have pointed out, under the name of *dothinenterite*, a particular lesion of the intestinal follicles which coincides more frequently than simple gastro-enteritis with the phenomena of what are called essential fevers. It is this same lesion, which, pointed out before M. Bretonneau's time by MM. Petit and Serres as the anatomical character of their entero-mesenteric fever, had been described by us in the first edition of the *Clinique* under the name of *intestinal exantheme*. We had pointed out all the stages through which the patches (*plaques*) and isolated papulæ (*boutons*) pass, from their origin to their transformation into ulcers. M. Bretonneau has added nothing either to M. Petit's description, or to ours ; he has merely assigned a seat to the exantheme, by placing it in the follicles. More recently, M. Louis has, by his excellent remarks, put out of all doubt the importance of the exanthematous lesion of the intestinal follicles in the production of severe fevers.

However, admitting that simple or follicular enteritis is the commencement of a great number of fevers, can every thing be explained by them ? We never thought so ; and it has always appeared to us that these fevers never become severe except in consequence of a disturbance which supervenes in the innervation and hematosis. This has also been very satisfactorily proved by Professor Bouillaud, who has contributed to give considerable weight to the doctrine of the localisation of fevers, by placing this doctrine on a broader basis, more particularly by establishing the reality of the alterations which on the one hand the blood, and on the other hand the nervous centres undergo in a great number of fevers. The part performed by these has also been clearly demonstrated by the valuable observations of M. Chaufford, of Avignon.

This disturbance of hematosis and innervation which gives rise to the phenomena called adynamic and ataxic, or in other words, to the typhoid state, may be the result of several lesions, different in their nature and in their seat.

First, gastro-intestinal inflammations give rise to it much more frequently than diseases of any other organ. Of these inflammations some are directed principally to the intestinal follicles, which become tumefied, and ulcerate ; others consist merely in a simple inflammation of the mucous membrane itself. Other organs also, however, though less frequently than the digestive tube, may become the occasion of that profound disturbance of innervation and hematosis, a disturbance which constitutes the adynamic and ataxic fever of Pinel. Thus phlebitis, pneumonia, particularly in aged persons, erysipelas, phlegmon, inflammations of the urinary passages, an abscess developed in the prostate, a matritis, several forms of inflammation of the liver, variola, acute inflammation of the synovial membranes, etc., may give rise to it. M. Boisseau has clearly proved this in his physiological pyretology, and it has been put out of all doubt by several other works, by those of Dance in particular.

But this is not all, and it may also happen that instead of having its commencement in a solid, the ataxo-adynamic fever recognises for its commencement some alteration of the blood, whether this alteration may have taken place spontaneously, and produce a sort of acute scorbutus, or it may follow the introduction of deleterious agents, as miasms, virus, matters in a state of putrefaction ; these agents, after having modified the composition of the blood, come to poison the venous centres. Then the disease is everywhere where blood and nerves are to be found, and in every part lesions may occur, which perform but a secondary part in the production of the symptoms.

Thus the ataxo-adynamic or typhoid state may be developed in consequence of a great number of affections widely differing from each other : it is a collection of symptoms, identical as to their ultimate seat, but not as to their origin.

Thus symptoms, identical also as to their nature, differ only in their greater or less intensity; with regard to their progress and duration, they are subordinate to the progress and duration of the affection in consequence of which the typhoid symptoms have been developed. If it be a primary alteration of the blood which gives rise to them, these symptoms may acquire in some hours their highest degree of development, and in some hours even occasion death. If the commencement be in an organ where inflammation is rapidly developed, as in a lung, or in a vein, the typhoid symptoms shall have a quick course and a rapid termination similar to this inflammation. If, on the contrary, they are connected with an inflammation, which, as that of the intestinal follicles, has stages which it passes through with a certain degree of slowness, they will be, like the inflammation itself, slow in their development, and slow in their termination, whether favourably or fatally. This is, we think, all the difference between a typhoid fever which is connected with a phlebitis, for instance, and that which follows a dothinenterite. There will be, however, in each of them, some particular symptoms, which will depend on the local lesion, as the diarrhœa in the case of follicular enteritis. We may, no doubt, as M. Louis has done, reserve the term typhoid fever for the morbid state which proceeds along with the affection of Peyer's glands; this, however, is a distinction purely arbitrary; and besides, this mode of proceeding seems to us to be attended with the inconvenience of thus designating a great number of cases of follicular enteritis, in which the term typhoid affection has no longer any meaning; for all cases of follicular enteritis are certainly not accompanied either with stupor or the different phenomena of ataxic or adynamic fever; all do not resemble typhus; they are oftentimes mere inflammatory, bilious, or mucous fevers, to use for a moment the language of the *Nosographie Philosophique*.

We do not then think it right to retain the term typhoid fever, because this term leaves a vagueness in the mind, which is not in science, and because it often fails in exactness with respect to the symptoms which it represents. We admit as a possible but never necessary consequence a *typhoid state* in a great number of diseases, that is to say, a state in which there appear some general symptoms more or less similar to those which characterise typhus. This state indicates that the disease no longer entirely exists in the organ where it had commenced; it is in some degree the signal that the blood and nervous centres participate in the disease. Thenceforward the nature of this disease is no longer the same, and other therapeutic indications present themselves to be fulfilled.

We hope that the observations which are now about to be made will contribute to throw some light on the questions just started.

CHAPTER I.

CONTINUED FEVERS TERMINATING IN DEATH.

In classing the cases relating to those diseases according to the seat of the lesions which they leave after them, we are led to distribute them, according to our observation, into three principal articles.

In the first are arranged the cases, where we ascertained in the digestive tube the existence of the lesion described by us in the former edition of this work under the name of intestinal exantheme, and by M. Bretonneau under the name of dothinenterite. These cases are the most numerous. They constitute the typhoid fever of M. Louis. The disease with which they are connected seems to us more suitably designated by the terms exanthematous or follicular enterite,

or even by that of dothinenterite. Should there be any repugnance to the admission of these terms, as appearing to prejudge a question which is in dispute, we would still prefer to the term typhoid fever, that of entero-mesenteric fever, which had been employed by MM. Petit and Serres. At the same time that it does not place the intestinal lesion in the first rank, it has at least the advantage of marking it; it attaches the mind to something precise, by referring it to the anatomical character of the disease.

Under the second article we give the cases, fewer in number, in which the digestive tube no longer presented to us an affection of its follicles, but a simple inflammation of its mucous membrane, characterised by the redness and softening of this membrane. This is the gastro-enterite, first described by M. Broussais. We shall prove that it may, as well as the follicular enteritis, give rise to typhoid symptoms, but in a smaller number of cases. The febrile disturbance which it excites, has also, in general, a shorter duration and less determinate periods than that to which follicular enteritis gives rise; perhaps, also, we may master it more easily and arrest it with more certainty in its progress than the fever connected with a dothinentery.

Lastly, in a third article, we shall detail the cases in which, whilst ataxo-adynamic or typhoid symptoms were still observed, we no longer discovered any lesion in the digestive tube. But, elsewhere, in different organs, alterations are found which may be regarded as the origin of these symptoms. But these alterations do not, any more than those of the digestive tube, constitute the entire disease; they are in some degree but the occasion of its development, nearly as a wound which, in certain predispositions of the system, becomes an occasional cause of tetanus. Here, as in cases of simple or follicular enteritis, it is in the nervous centres secondarily affected, that we must seek the cause of the severity of the disease; it is in the nature of the modifications which the nervous centres have undergone, that we must seek the explanation of the symptoms; it is to the state of those centres that the treatment must in a great measure be made subordinate.

ARTICLE I.

CONTINUED FEVERS, CONNECTED WITH FOLLICULAR INFLAMMATION OF THE INTESTINES.

In the following cases we shall endeavour to trace the follicular enteritis through its different stages, from that where it constitutes only some elevations scattered over the inner surface of the small intestines, to that where the ulcerations which have succeeded those elevations are themselves cicatrised. We shall study what are the symptoms which have accompanied the different phases of this kind of exantheme; we shall strive to determine their relations to the latter; and, finally, we shall see how far the disease, in its different symptomatic forms, is influenced either favourably, or unfavourably, by the different therapeutic methods.

SECTION I.

CASES OF FOLLICULAR ENTERITIS AT THE PERIOD OF THE EXANTHEME.

Case 1. — Symptoms of bilious fever; no diarrhœa — Death from pneumonia nine days after the termination of the primary disease — Tumefaction of the follicles of the small intestine.

A man, twenty-seven years of age, residing in Paris for the last thirteen months, experienced for some time back a loss of appetite, some headach, a

sensation of unusual debility. One evening, after supper, he had a shivering; all that night he felt a burning heat. On the next day this heat continued; he had a slight pain in the throat, and vomited the food which he took the day before. The evening after that he entered the Charité. Examined the next day, the third day of his illness, he presented the following state: — Countenance yellow, with redness of the cheeks; supra-orbital headach; eyes injected; general debility; motion painful; pains in the joints. Lips dry; tongue covered with a thick yellow coat, of a bright red at the edges and apex; bitter taste in the mouth, not much thirst; deglutition slightly painful; abdomen soft, and free from pain in every part; no stools since the commencement of the disease. A little cough; mucous râle in some points. Pulse frequent and hard; skin dry, and of an acrid heat. (Venesection to twelve ounces; ptisan of barley, lavement (enema), diet.)

On the following day, the fourth day, state of patient not changed. (A second venesection.) Delirium in the night of the fourth day.

On the fifth and sixth days, the yellow tint of the face becomes more and more marked; features sunk; the patient looks with an air of amazement at those around him; his answers are slow; coating of the tongue very thick; abdomen not tense; constipation still continues. On the morning of the sixth day, we were struck with the way in which the respiration was performed; it was high and accelerated: on examining the chest, we discover a well-marked crepitous râle all over the lower lobe of the left lung; in this same extent there was a slight diminution of sonorousness of the thoracic parietes; no expectoration; pulse extremely frequent. Existence of pneumonia evident. (Venesection to twelve ounces, sinapisms to the lower extremities.) Neither the blood drawn on this nor on the preceding occasion was buffed. In the night, the patient became delirious.

On the morning of the seventh day, dyspnœa very great; expectoration not more than on the preceding day. On the posterior and lateral part of the chest on the left side the sound was dull, and neither crepitous râle nor respiratory murmur was heard there. The state of the digestive passages was the same. Answers were obtained with difficulty from the patient. (Two blisters to the legs.) Delirium in the night.

On the eighth day the same state. On the ninth extreme dyspnœa; the patient can with difficulty pronounce some words in broken accents. He died in the course of the day.

Post-mortem. The brain and its appendages considerably injected, a circumstance which seems connected with the state of asphyxia in which the patient died.

The lower lobe of the left lung was completely hepatised; the remainder of the pulmonary parenchyma, on the left and right sides, very much engorged. The heart contained, on the right side, a large black clot of but little consistence.

The inner surface of the stomach presented nothing but a certain number of submucous veins gorged with blood, which were particularly apparent towards the great cul-de-sac. The mucous membrane itself was every where pale, and of the ordinary consistence.

This same venous injection in the three lower fifths of the same intestine. At the extent of two feet above the ileo-cæcal valve, there existed five large patches of a reddish-grey colour, of an oval form, occupying the free edge of the intestine, forming a slight prominence above the level of the rest of the mucous membrane. These patches evidently resulted from hyperemic tumefaction of the follicles of the intestine; between these patches some small pustules were found, some red, others of a whitish-grey colour, which are nothing but isolated follicles. Between these pustules, or between the patches, the

mucous membrane was pale. The inner surface of the large intestine was white through its entire extent.

This case furnishes a well-marked instance of dothinenterite in its first stage. At the time the patient entered the hospital, the respiratory apparatus presented nothing but slight irritation of the bronchi, and it was not there we were to seek the cause of the fever. Was there any other organ in a state of suffering? In no part, except at the pharnyx, was there any pain discovered; the abdomen retained its natural softness, and freedom from pain. There was no diarrhœa, but there was merely observed a *saburral* state of the tongue, with redness of its periphery, which coincided with a *bilious tint* of the face. Add to this the state of the skin, and of the pulse, and we shall have the disease described by nosographers under the title of *bilious fever*. Still what information did we obtain from the *post-mortem?* It revealed to us a morbid state of the intestinal follicles; and as this same state has been found in cases where, a long time before death, the same symptoms has been observed during life, we are warranted in supposing that there is a remarkable connexion between these symptoms and the intestinal disease; we may say that it is the latter which was at least the commencement of the former. This disease is still in its first stage; it as yet consists but in a species of exantheme. Now one may be asked at what precise period did the exantheme commence; was it only the day the shivering manifested itself, and from whence we dated the commencement of the disease? But then we shall ask, what was the lesion which, previous to this day, had produced anorexia, headache, and general illness? If the intestinal lesion commenced simultaneously with the first derangement of health, was it by becoming all at once more intense, or by changing its nature, that it produced the fever?

Be that as it may, we should remember from this case that a dothinenterite may develope itself without producing either pain, tension of the abdomen, or diarrhœa. Neither should we forget the state of the tongue, which was not explained in this case by any morbid state of the stomach. In this latter organ there was not more *saburra* than irritation, and its examination after death would no more have justified the administration of an emetic than the application of leeches to the epigastrium.

If we now study this disease with respect to its progress, and with respect to the therapeutic means opposed to it, we shall find that here, as in many other cases, bloodletting exercised no beneficial influence: every day, in spite of it, we perceived the disease to become worse; the delirium, which returned every night, the appearance of the countenance, the disturbance of the intellect and of speech, the continually increasing difficulty of moving were such as should cause one to dread the transformation of the disease into *adynamic fever*, properly so called, when the pneumonia which prematurely terminated the patient's life, declared itself. This pneumonia was remarkable for the rapidity with which it passed from the first to the second stage; no pleuritic pain accompanied it; no characteristic expectoration marked its existence. Here is a case, among a thousand others, in which the previous bloodletting did not prevent a new inflammation from setting in.

Case 2.—Symptoms of ataxic fever — Death six days after the invasion — Tumefaction of the intestinal follicles — No appreciable lesion in the nervous centres.

A servant, thirty-one years of age, entered the hospital in a state of complete delirium. Those who brought him stated that four days previously he had been seized with headach and fever. Only on the day before his admission, he commenced to rave. When we saw him, his face was very much flushed; the eyes rolled continually in the orbits, as if agitated with convulsive movements. The patient uttered some words unconnectedly, and no

answer could be obtained from him ; the strait-waistcoat had to be put on him. The trunk was in constant motion ; tongue red and dry ; profuse salivation set in ; abdomen soft ; no diarrhœa. The pulse more than 120 ; still retained considerable strength. (Venesection to twelve ounces ; thirty leeches to the neck.)

On the two days following, the delirium continued without any lucid interval : the tongue became more and more dry ; face pale ; pulse extremely frequent, and thready, and the patient died towards the end of the sixth day. The constipation did not cease ; the abdomen became a little tympanitic on the second day. — Thirty more leeches were applied to the neck on the fifth day, and on the sixth two blisters were applied to the legs, which did not take.

Post-mortem. Meninges pale ; no encephalic injection. Thoracic organs healthy. Two red patches, each the size of a two franc piece, were observed towards the great cul-de-sac of the stomach. These patches consisted of a dotted injection of the mucous membrane ; in every other part this membrane was of a good consistency.

Small intestine white, without any appreciable lesion, in its upper five-sixths. The lower fifth presented, 1st, some oval red patches, evidently consisting of diseased follicles ; 2dly, a great number of small conical pustules, equally red, which seemed to us nothing but isolated follicles. Between them the mucous membrane was white, and of a good consistence, A few similar pustules existed in the cæcum. The rest of the large intestine was pale, its mucous membrane not softened.

The alterations of the digestive tube, found in the body of this patient, are the same as those which we saw in the preceding case. Here there were but the two small red spots of the stomach. Yet what a difference in the symptoms ! The subject of this case appeared one who should have presented after death lesions connected with the brain, and none were discovered. The encephalon and its appendages were even found paler than in the subject of the first case, where delirium existed only at intervals. In other respects there was in both the same absence of local symptoms with respect to the abdomen ; the tongue, however, in both cases, lost its natural appearance. But it was in the second that it was modified in the most serious manner. Is it the two small red spots found in the stomach that shall explain in this case the redness and dryness of the tongue ? But in how many persons do we not find more intense and more extensive injection in the mucous membrane of the stomach, without the tongue having been altered during life !

Here then are two individuals in whom one and the same lesion of the intestine is not revealed by any other local symptom than by a modification of the state of the tongue, which in both is not the same ; still further, this intestinal lesion, identical in both, is accompanied in both by general symptoms of a very different description.

Again, the intestine examined here on the sixth day, presented the same alteration as in the preceding case, where it was only on the ninth day it was examined.

Here again, as in the first case, we can perceive the total inefficacy of bloodletting, both general and local. By this I do not mean to say that we must not have recourse to it ; I only say that by it we do not always master the disease, nor do we always arrest it in its progress. These cases, moreover, are not the only ones of this kind which I might adduce. Out of the hospitals I might cite several instances of young medical students, who, being bled very largely from the very commencement, and during the course of diseases similar in their nature to that just now cited, still were carried off. I shall here quote only the two following cases, as instances of the frequent inefficacy of bloodletting, whatever be the period of the disease at which it is employed.

A medical student, twenty-two years of age, who had been residing in Paris for about three months, in a spacious and airy bedchamber, had worked very assiduously, had lived very well, and had not committed any excess since his arrival in Paris. Toward the end of January, 1829, he was seized with a violent headach, which he tried to remove by a purgative. The headach, far from lessening after this, increased and continued for three days, without any other symptom : then some fever appeared, and, at the same time, the intellect became disturbed. *He was bled twice from the arm* without any amendment following. The intellects became even more and more disturbed ; pulse very frequent. Thirty leeches were applied to the neck, and a considerable quantity of blood flowed from their bites. The day after their application the face was pale ; features remarkably sunk ; the delirium continued worse than ever ; subsultus tendinum very frequent, and the tongue which, till then, was only white, was now dry. Ice was then applied to the head ; all the symptoms became worse ; continual tremor of the muscles, in which the tongue participated, when the patient attempted to protrude it from the mouth ; pulse became thready, and the patient died.

In another medical student of the same age, and living about the same length of time in Paris, not addicted to any species of irregular conduct, the first derangement of health manifested itself, as in the preceding case, by an intense headach, which, after having continued for three days, was accompanied with fever. *A first bleeding*, employed on the same day that the fever appeared, was not followed by any improvement. The next day *a second bleeding ;* headach still continued ; pulse became more frequent, tongue white and moist. *Leeches were applied to the anus ;* no amendment; *he was bled from the foot ;* the headach continued as well as the fever. Recourse was then had to cold applications to the forehead. The temples were rubbed with ether; sinapisms were applied to the legs. The headach disappeared, and the patient appeared better. But the next day the frequency of the pulse again increased, and slight disturbance of the intellect was observed. On the following day, all the symptoms of violent fever declared themselves; repeated epistaxis, dryness and blackness of the tongue, leaden tint of the face ; subsultus tendinum ; irregularity of muscular action ; tympanitic state of the abdomen, disturbance of the intellect, at first intermittent, then continued. Pulse very frequent and small ; death.

Here are two more well-marked cases, where bloodletting was equally ineffectual, either to remove the still slight symptoms which existed at the time it was employed, or to prevent the development of more alarming symptoms.

Case 3. — Symptoms of ataxo-adynamic fever — Death on the eleventh day — Tumefaction of the follicles of the ileum and cæcum — Injection of the meninges and of the exterior grey substance of the cerebral hemispheres — Spleen large and soft.

A peruke-maker, eighteen years of age, exhausted by excess in venery and that of the table, felt, on the 3d September, towards two o'clock in the afternoon, and without any known cause, a violent shivering, which lasted for three hours ; this was succeeded by heat, then a profuse sweat set in, and continued till the following morning. The four following days, there was constant heat, perspiration at night, headach ; mouth very foul, anorexia, diarrhœa. During all this time the patient kept his bed, and drank nothing but *eau sucrée.* He entered the Charité on the 7th of September ; he walked to the hospital ; in the course of that night he raved a little.

On the 8th headach less, countenance red, eyes brilliant; tongue dry, scarcely red ; thirst, anorexia, mouth very foul ; abdomen a little tympanitic, slightly painful on pressure ; stools watery, preceded by colicky pains ; pulse frequent, a little hard ; skin hot.

On the night of the 8th, the patient again became delirious; on the morning of the 9th, the delirium continued; the eyes remained closed; face very red; the pulse, moderately frequent, had lost it hardness. (Bleeding to two palettes; sinapisms to the knees.)

On the 10th, some amendment; intellects clearer; but from time to time, however, his ideas again became disturbed; the tongue was always a little dry, the abdomen tympanitic; two liquid stools. (Twelve leeches to the anus, sinapisms to the legs in the evening.)

The delirium returned in the day; at night we were obliged to tie him, in order to prevent him from escaping from his bed.

On the 11th, he was sunk in a profound stupor, from which, however, it was not difficult to arouse him; he answered questions, but knew not where he was; he pronounced some unconnected words, and then his eyes closed again; the pulse, which was weak, had become very frequent; digestive functions in the same state. (Eight leeches to the anus; two blisters to the legs in the evening; barley water with gum.)

On the 12th, state of coma more marked; four involuntary stools. (Four leeches behind each ear; embrocations of camphorated oil of camomile to the abdomen; aromatic frictions to the extremities; two more blisters to the thighs.)

The leeches prescribed for the neck were applied to the anus; in the day the patient emerged from the state of coma; became very uneasy, wept and cried aloud. (The same prescription, except the blisters.)

On the 13th, we scarcely approached his bed, when he began to cry, and appeared sunk in despair; he no longer returned any answers; however, he still retained sufficient intellect to show his tongue when signs were made to him to do so. The tongue was dry, a little brown at its centre; he had had no stool. (Mineral lemonade.)

On the 14th, profound coma; conjunctiva injected; face covered with a cold clammy sweat; extremities icy cold; pulse thready, and so frequent that it could not be counted; death two hours after the visit (from the 10th to the 11th day of the disease.

Post-mortem twenty-two hours after death. *Cranium.* — The arachnoid of the convexity of the hemispheres considerably injected. It was torn with the greatest ease; on endeavouring to raise it, we detached with it some superficial portions of the cerebral convolutions. The surface also of the hemispheres presented a slight rosy tint. The ventricles contained but a very small quantity of serum. Arachnoid of the base not injected.

Thorax.— Both lungs engorged with a great quantity of bloody serum. The heart contained some black blood half clotted.

Abdomen. — The inner surface of the stomach was pale through all its extent. The duodenum was white, as also the jejunum in its upper three-fourths. The lower fourth presented several red patches, which, altogether, might fill up about from eight to ten inches in length. The whiteness re-appeared in the upper two-thirds of the ileum. In its lower third, numerous elevations were seen to arise from its inner surface, projecting one or two lines above the mucous membrane; their breadth varied from that of a grain of hemp-seed to that of a large lentil; the colour was a dull white. In the centre of three or four of them there was a slight loss of substance, hardly equalling the size of a pin's head. They were all seated in the mucous membrane. At first distinct, they became confluent near the ileo-cæcal valve; where they were distinct, the mucous membrane placed in the intervals between them retained its white colour; lower down this membrane had acquired a rosy tint.

In the cæcum and in the transverse and ascending colons these elevations were again found, but much fewer in number. Scarcely four or five of them

were counted in a space of six inches in length. However, the mucous membrane was more injected than that of the extremity of the small intestine.

The remainder of the colon and the rectum were white and healthy.

The spleen was extremely large ; its tissue was dense and black.

The biliary ducts and gall-bladder contained a liquid of a dirty grey colour entirely different from bile.

This disease again presents an aspect different from that of the preceding. Some well-marked symptoms of intestinal irritation marked its commencement: there was no longer here constipation as in the preceding cases ; diarrhœa existed from the very beginning ; it was ushered in by a shivering, and appeared simultaneously with the fever. The sweat which, at first, appeared every night, is a phenomenon of rather rare occurrence in cases of this kind. However, more alarming symptoms soon supervened. The intellects were at first disturbed at intervals, then the disturbance became continued; remarkable alternations of extreme agitation and profound coma were observed ; the abdomen became tympanitic, and the tongne dry and brown. On opening the body the same exanthematous patches were found in the small intestine ; ulceration seemed to be commencing in some of them ; some of a considerable size were also found in the cæcum, and this latter circumstance explains the diarrhœa which existed at the onset of the disease. Still further, there was here in several points of the intestine a redness of the mucous membrane itself, which was wanting in the two preceding cases. Neither in this, more than in the preceding, was the state of the tongue explained by the state of the stomach. In this case, finally, we found in the brain traces of congestion which did not exist in the subject of the second case, though in the latter case the different nervous symptoms were still more marked.

Among the other alterations discovered on opening the body, we shall notice, 1st, the very peculiar appearance of the bile ; 2dly, the great size and extreme softness of the spleen. We shall not find the same alteration of the bile in the following cases ; we shall find, on the contrary, a state of the spleen similar to that presented to us in the present case. Now, does not this extreme frequency of the same alteration in one and the same species of disease, prove its importance ? Should it not at least engage the attention of observers ?

The treatment was purely antiphlogistic ; during the first days diluent drinks and diet ; then large bleedings, general and local ; and lastly, revulsives. However, the disease continued its course. Would the bloodletting have been more successful, if employed from the very commencement ? We may suppose it, but who would venture positively to affirm it, after having read the cases preceding this case ? There were, besides, in this individual, peculiar conditions of innervation, which existed previous to his disease (his habits of excess), and which, no doubt, were not without their influence on its severity. However, we should not exaggerate this influence ; for no similar cause had existed in the individual who forms the subject of the second case, nor in the two medical students whose cases are mentioned among the observations appended to that case, and yet in those three individuals disturbances of innervation equally serious manifested themselves.

Case 4. — Symptoms of fever at first mucous, then adynamic — Death on the 16th day — Tumefaction of the follicles — Numerous worms in the intestine.

A boy, sixteen years of age, of delicate frame, as yet presenting no signs of puberty, had been living in Paris just nine days. He had to come from Lorraine, and travelled in an open vehicle. Two days after his arrival he felt some headach and uneasiness in the throat. At the same time there was loss of appetite and fever ; no pain in the abdomen nor diarrhœa. After having re-

mained for seven days in this state, he entered the Charité, and then presented the following state :

Headach ; face pale ; pupils very much dilated ; great dejection of mind ; listlessness in moving ; tongue whitish ; thirst; extreme disgust for food of every kind ; frequent nausea ; slight uneasiness in the throat ; abdomen soft, and free from pain ; no stool for the last six days ; fever very slight ; breathing free ; chest sonorous ; acute pain on pressure between the fourth and fifth ribs external to the breast, to the extent of one or two inches at most; can lie in any position. (Twenty leeches to the anus ; tisane d'orge oximélée.)

The next day, 28th of February, mouth very foul ; breath fetid ; nausea ; slight diarrhœa ; abdomen swollen ; pulse scarcely feverish ; skin dry ; countenance pale ; eyes heavy ; general debility sensibly increased. (Ten grains of ipecacuanha ; two blisters to the legs ; embrocations of camphorated oil of camomile to the abdomen.)

The patient vomited a little bile, and went to the night chair once in the twenty-four hours.

March 2d, tongue equally loaded, mouth also foul ; pain of side now but very slightly felt by strong pressure. But the patient was now despondent; he had had some delirium during the night ; the prostration of strength increased ; the features were perceptibly changed ; the abdomen, now very large, was painful on pressure ; pulse very frequent and compressible ; skin dry and hot. (Six leeches behind each ear ; embrocations with oil of sweet almonds over the abdomen ; emollient fomentations ; tisane d'orge edulcorée.)

A great quantity of blood flowed from the leech bites.

Only one stool took place up to the next morning.

On the 3d day the patient commenced to become delirious ; at night he was very much disturbed. On the morning of the 4th, the face was dejected and very pale, and expressive of anxiety ; the patient answered questions with considerable difficulty ; his ideas were lucid only at intervals ; when the abdomen was even slightly pressed he uttered loud cries ; the pain appeared then sufficiently acute to cause us to suspect peritonitis ; tongue moist and yellowish ; no evacuations by stool. (Flaxseed ptisan, emollient lavements and fomentations.)

Screaming and delirium on the night of the 4th. On the 5th the delirium continued ; features changed ; eye dull, half covered by the upper eyelid. Pressure on the abdomen caused pain ; pulse very frequent and weak ; skin hot and dry ; tongue still moist ; patient coughed very much.

On the 6th, in the same state ; extreme dilatation of the pupils, which scarcely contracted under the influence of the light. On the 7th, face cadaverous ; tongue for the first time dry and covered with a brownish coat ; intellects quite gone ; pulse thready, extremely frequent. Skin moist for the first time ; abdomen soft, no stool ; respiration hurried ; cough ; sibilous râle anteriorly on both sides. He died in the evening.

Post-mortem. Nothing remarkable in the head.

Considerable engorgement of the posterior part of both lungs, particularly of the right ; heart empty as well as the arteries.

Inner surface of the stomach generally white ; slight injection of the mucous membrane over a small extent of the great cul-de-sac.

Considerable redness of duodenal mucous membrane ; nothing remarkable in the upper three-fourths of the small intestine ; sixty ascarides in the lower fourth ; in this portion there were observed numerous elevations, irregularly rounded or oval, white, projecting one or two lines above the level of the mucous membrane, the diameter of which varied from that of a small pin's head to that of a two franc piece. They were formed by thickened mucous membrane, which was

white around them ; some tricocephalous worms were found in great quantity in the large intestine, which was white ; some black points, crowded together, such as we have already described, studded the mucous membrane of the vermicular appendix of the cœcum.

When this patient entered the Charité, nothing was observed regarding him but general debility, a sort of languor of most of the functions. He presented in a manner that group of symptoms described under the name of mucous fever. The cause of this state was found to be the fatigue of a long and painful journey, and probably the use of bad diet. After some days, and whilst the general debility was proceeding, the pulse, scarcely frequent till then, became accelerated, delirium manifested itself, first at intervals, and then in a continued form, and the patient died in an ataxo-adynamic state. At first leeches were applied to the anus. Well-marked signs of gastric disturbance were combated by a vomit. Afterwards blisters were applied to the legs. An effort was made to stop the delirium by bleeding from the mastoid region and the neck. We have seen the lesions found on opening the body. Whilst the stomach presented but slight injection, and one of but small extent, the tongue was dry and black towards the termination.

Can the worms be considered as the cause of the disease of which the patient died ? We may observe that a similar state has been observed in persons whose intestines contained no worm. At other times, on the contrary, we have found the intestines filled with an immense quantity of lumbrici, in patients who presented none of the symptoms observed in this case.

Or is it to the presence of worms that we must attribute several of the symptoms, such as the extreme dilatation of the pupils, which continued from the time of the patient's admission to his death, the livid paleness of the face, and of the parts around the orbits, the fetid breath, enlargement of the abdomen, its extreme sensibility, particularly in the latter periods of life? We have often seen this latter phenomenon appear in several cases of bad fever without the existence of any lesion to account for it. The patients evinced the most acute pain, uttered loud cries on making even slight pressure on the abdomen ; but if we made the same degree of pressure on other parts of the body, as the chest or extremities, they did not bear it better. This general feeling of pain is but the result of an exaltation of sensibility ; in other persons, on the contrary, also labouring under ataxic fever, the sensibility is so far abolished that one may pinch the skin with the utmost severity, and even run sharp bodies into it, without the patient appearing to feel any pain.

Is it again to the worms we are to attribute the pleuritic pain of which the patient complained at first, and the cough also which distressed him? Morgagni, *irrefragabilis auctor*, as Haller calls him, has given the case of a young man, who, labouring under a cough and an acute pain in one of the sides of the chest, was freed from both after vomiting up a lumbricous worm. This fact should not be admitted except with some reserve. It is not a matter of doubt, however, that most of the symptoms of pulmonary phthisis may be simulated by the presence of tænia.

Besides, there are few diseases, particularly in children, of which persons have not imagined that they may consider worms as the cause. Klein has said: *Nullum tam peregrinum est symptoma tamque δαιμονι αχιν, quod vermes excitare non possint.* We read in different works numerous examples of paralysis, of states of coma, of asthmas, of palpitations of the heart, of obstinate coughs, of epilepsy, hysteric convulsions, owing to this cause. There is no disease, even to tetanus, which has not been considered as resulting from the presence of worms in the intestinal canal. Since the time of Alexander of Tralles, it was said, that when worms passed from the small intestine into the stomach, they gave rise to severe cardialgia, to syncope, and that sudden death was sometimes the result of them.

It must be owned that such observations become much more rare, according as pathological anatomy is more generally and more carefully cultivated. But whilst we may distrust the reality of these extraordinary facts, we should take care not to deny the possibility of them. A hemiplegia occasioned by worms should not appear to us a more incredible phenomenon than paralysis consecutive on the introduction of particles of lead into the digestive passages. Now nothing unfortunately is more real and more common than this latter species of paralysis. The symptoms caused by worms must vary much according to their nature, their number, their more or less active life, their greater or less mobility, their more or less immediate contact with the mucous membrane, their situation in such or such a part of the digestive tube, the activity of the sympathies of the individual, his nervous susceptibility, etc. Some physicians, said De Haen, make worms perform too important a part in the production of diseases, whilst others do not pay sufficient attention to them.

In our patient, the portions of mucous membrane in contact with the worms were very white. At other times we found those animals plunged in a quantity of bloody mucus, and the mucous membrane very much inflamed around them.

Case 5.—Symptoms of ataxo-adynamic fever—Death towards the 18th day—Tumefaction of the follicles of the small intestine—Follicles of the colon more apparent than usual—Spleen large and soft—Pneumonia.

A coach-driver, about twenty-five years of age, was brought to the hospital in a state of complete delirium. We could learn nothing regarding his previous state, except that he was ill for the last fifteen days. The eyes were injected, the cheeks red, the lips dry, tongue moist. He passed his fæces frequently under him. Pulse weak and frequent; skin not hot; some subsultus tendinum. (Two blisters to the legs; barley water with gum in it.)

On the next day, 18th December, continuance of the delirium; tongue dry; pulse very frequent and very weak.

On the 19th, for the first time, the patient answered questions, though still delirious. He had a very marked air of stupor; some petechiæ on the epigastrium; breathing hurried. (Sinapisms.)

On the 20th, the last degree of prostration; face cadaverous; pulse thready, and so frequent, that its beats were beyond counting; tongue dry and black; involuntary stools.

He died in the course of the day.

Post-mortem. Brain healthy; a mixture of sero-sanguinolent engorgement and of red hepatisation in the lower lobe of the right lung.

Slight injection of the great cul-de-sac of the stomach. Perfect whiteness of the upper four-fifths of the small intestine; in the lower fifth several elevations of a red colour and oval form, separated by intervals in which the mucous membrane was white. No ulcerations.

Slight injection of the cæcum; in the descending colon isolated black points on the centre of a slight prominence of the mucous membrane (follicles).

Spleen large and very soft.

The subject of this case died at a period more remote from the commencement of the disease than the subjects of the preceding cases; however, the same alterations were found in the intestine; none of the exanthematous patches, which were observed on it, as yet presented any ulceration; we have already seen a case, where the disease was less ancient, and yet where the surface of these patches presented a slight commencement of solution of continuity. We shall see presently other instances of more considerable ulceration also at a less advanced period.

In this case we again see an instance of delirium without any appreciable lesion of the encephalon, and a dry black tongue, with a state of stomach such

as is met in a number of cases, in which the tongue never changed from its natural state. Why was this tongue still moist on the day the patient entered the hospital? Why from the next day was it found so dry?

What symptom could have here caused one to suspect hepatisation of a part of the right lung? A little difficulty of breathing the day before his death was all that was observed with respect to the chest. This shows the necessity, in such cases, to practise auscultation and percussion, even when no sign induces us to suspect the existence of a disease of the respiratory organs. Here, also, it may be observed, that no other plan of treatment but that employed could have been opposed to this pneumonia; the symptoms contra-indicated the employment of bloodletting in any form, and the revulsives which were applied could have been the only means used to arrest the pneumonia.

Case 6.—Symptoms of ataxo-adynamic fever—Previous distress—Progressive derangement of the health—Death from the 25th to the 30th day—Tumefaction and redness of the intestinal follicles—Redness of the splenic portion of the stomach, and of the mucous membrane of the small intestine between the follicles—Red spots on the inner surface of the bladder—Spleen large and soft—Pneumonia.

A man, fifty-five years of age, emaciated and of a delicate constitution, had previously been in tolerably easy circumstances; but for some years back he had been plunged into great distress, and now subsisted on a small pension, which was not sufficient to satisfy his wants. He dwelt in a very small room, situate very close to infectious privies. However, he had always enjoyed tolerably good health, when, towards the end of August, he was seized with violent angina, after plunging his feet into cold water whilst they were in a state of moisture. This angina was removed by the application of leeches to the neck; but from that time he continued in a delicate state of health. He felt at intervals headachs, severe lumbar pains, and lost his appetite; his strength was diminished. On the 12th September he was attacked with diarrhœa, which continued up to the 18th, when he entered the hospital. During this time he had not more than two or three liquid stools every twenty-four hours. On the morning of the 17th, he presented the following state:

Features sunk; prostration; tongue dry, brown in its centre; but little thirst; loss of appetite; abdomen free from pain; two liquid stools since the last twenty-four hours; pulse frequent and weak; but little heat of skin; a little excitement in his ideas.

Notwithstanding the adynamic aspect of the face, and the brown colour of the tongue, fifteen leeches were applied to the anus. (Emollient lavement; sweetened barley water.)

On the next day, 18th, the entire upper surface of the tongue was black; in other respects his state was the same. (Barley; emollient lavement.)

No stool occurred up to the following morning; tongue dry and black; prostration still increasing; pulse very weak and frequent; skin not hot. However, in the midst of the general adynamic state, his ideas were still excited; the patient romanced very much; he was in a state bordering on delirium.

M. Lerminier determined on unloading the brain, on the one hand, and on the other to raise the strength; such was the object of the following prescriptions:—Four leeches behind each ear; two sinapisms in the evening around each leg; frictions of camphorated alcohol on the extremities; lavement with an ounce of quinquina and a scruple of camphor; barley water, with a third of wine; mineral lemonade.

In the course of the day his ideas became lucid; the night was sufficiently calm. On the 20th his state scarcely changed. (The same prescription, except the leeches.)

The following twenty-four hours the fæces passed involuntarily three or four

times. On the 21st, his mind still excited; the dryness and blackness of the tongue still continued; pulse thready; temperature of the skin as usual. (Two cups of infusion of quinquina, with the addition of syrup of orange peel.)

On the 22d, 23d, and 24th, no change in the patient; three or four alvine evacuations in the twenty-four hours; power of moving still remained: could raise himself up in the bed on his elbow, and remain in that position. His case did not yet seem hopeless. (The same treatment was continued.)

On the 26th the tongue was moist, and had partly lost the black appearance; none of the other symptoms were aggravated. He died, however, on the 27th, at one o'clock in the morning.

Post-mortem, thirty-two hours after death.

Cranium.—Sub-arachnoid cellular tissue infiltrated with a little serum. Brain a little soft, not injected, neither were its membranes. About two spoonsful (*cuillières à café*) of limpid serum existed in each lateral ventricle. Nothing remarkable in the other parts of the encephalon.

Thorax.—The right lung, which adhered to the ribs by old cellular bands, was perfectly healthy; it was not even engorged. The same may be said of the anterior part of the left lung; but posteriorly its tissue, which was of a deep brown, was engorged with a great quantity of blood; it scarcely crepitated, and was broken into a pulp when pressed between the fingers.—The heart, which was well proportioned, contained in its right cavities a white fibrinous clot of considerable consistence, occupying both the auricle and ventricle. On pressing this clot between the fingers, a great quantity of serum was forced from it, and it was changed into an albuminous, thin membrane. Similar clots existed in the aorta, the inner surface of which was white.

Abdomen.—The stomach was a little covered by the liver; its inner surface was white in the pyloric portion; but over the splenic portion numerous vascular ramifications appeared, around which small red points were collected. Grouped together in several places to a considerable number, they produced therein a uniform red colour. The vascular ramifications were seated in the laminated tissue, and the red points in the mucous membrane; small injected vessels formed them. The membrane, which was of considerable thickness, was detached every where without being torn. It appeared manifest that inflammation in the first stage existed in about two-thirds of the stomach.

The small intestine presented a white colour, of a slightly rose tint at intervals, to the extent of a foot and a half above the cæcum. Over this space the mucous membrane presented an intensely red colour, and a greater thickness than natural. In three places there were found oblong elevations, red as the rest of the membrane, being four lines in length to one or two in breadth. They would probably have been changed into ulcerations, if the individual had lived a longer time.

Immediately below the ileo-cæcal valve, the inner surface of the intestine changed its appearance. Instead of a uniform red colour, we observed, on a white ground, a number of very small red patches, of a truly miliary size, rounded, oblong, or sinuous, the middle of which presented a white tint similar to the colour of the mucous membrane in the interval between the patches. This alteration existed from the cæcum to the sigmoid flexure of the colon. The rest of the large intestine was white: it was filled with liquid greenish matter.

The liver was remarkably hard; three small calculi, two miliary, and the third the size of a nut, were contained in the gall-bladder. The spleen, which was large, was reduced to a reddish pap by the slightest pressure. The bladder contained a small quantity of urine: its inner surface was marked with a great number of spots of a vermilion red, similar to those sometimes found in the stomach.

It is impossible to mark in this case the precise time when the intestinal lesion

commenced. In this patient, who was placed in conditions which predisposed him to severe disease, we at first perceive the health to become deranged by little and little; symptoms then supervened one after the other with respect to the organs of deglutition, on the part of the head, the loins, and then the digestive tube: ultimately, the lesion of the latter part continued, and became predominant.

When the patient entered the hospital, he already presented that group of symptoms, which, in Pinel's school, characterise the adynamic state, and delirium soon came on. During the first days mere emollients were prescribed, the state of the patient became worse; tonics were tried; these at first were not more serviceable. However, it is worthy of remark, that two days after commencing the use of quinquina by the mouth, the tongue began to become moist and to lose its black coating; and, under the influence of this medicine, the diarrhœa did not increase. How are we to explain this change in the appearance of the tongue, after the administration of the quinquina, if we reflect on the intensely red state of the stomach, as seen in the *post-mortem?* Is it the medicine itself which produced this redness? The tolerably good state of the strength, the free power of motion, still allowed some hope of recovery, when on a sudden the patient died. What part did the lung affection perform in the production of the symptoms and of death? We cannot tell; but here, again, the pulmonary affection remained completely latent, and was not discovered till after death. The state of the lung was very remarkable; it was rather a sort of pultaceous softening than a true hepatisation.

The noxious influences of air and diet to which this person had been exposed a long time before he became sick, the distress which he had experienced, might incline one to think that in him the first movement of derangement of the health had been a badly repaired state of the blood. This was one of the cases in which, *à priori*, one might admit an alteration of the blood as a primary cause of the morbid phenomena, and in which one might have expected to find it, after death, different from what it is in the normal state. However, it was not so; if the blood was altered, it was not at least altered in a manner appreciable by our senses: let us recollect, accordingly, the fibrinous clot of natural colour and consistence, which filled the cavities of the heart. In the diseases similar to those of which the preceding case is an instance, and which, in a language purely symptomatic, have been called typhoid fevers, the blood does not then always lose the property of coagulating after death, as has been asserted, and it cannot be established as a principle that, under such circumstances, it is found liquid in the vessels. Say, if you will, that in those diseases the alteration of the blood may be admitted, either from the study of the causes, or that of the symptoms; but acknowledge that, in many cases at least, it is solely by reasoning, and not by material proofs, that you are led to admit this alteration. In a subsequent part of this work, we shall find other cases where the blood, examined on the dead body, will present in its physical properties modifications which will not suffer us to call in question its real alteration.

Case 7.—Symptoms of fever at first inflammatory, then ataxo-adynamic—Death on the thirty-first day—Constant absence of diarrhœa—Tongue dry only on the two last days—At first copious bleeding, then stimulant treatment—Tumefaction of the intestinal follicles; livid redness of the inner surface of the cæcum and colon—Redness and softness of the mucous membrane of the stomach.

A sawyer, twenty-four years of age, was sick for ten days previous to his entering the Charité; during this time he complained of headach, lassitude, and burning heat over the entire body; on his admission he had considerable fever; stools natural, abdomen soft and free from pain. At first we merely gave him demulcent ptisans. On the fourth day, the 8th of October, twelve leeches were applied to the anus.

On the 9th, headach less; had a tranquil night; fever less; tongue whitish, red only at the apex; two stools. (Barley ptisan.)

During the night of the 9th, slight delirium. On the morning of the 10th, some depression; pulse as it were rebounding, and of moderate frequency; tongue covered with a yellowish coat. (Bleeding from the foot to the amount of three palettes.)

The night of the 10th was more tranquil than the preceding night. On the 11th the countenance was better, intellects and speech clearer and more distinct. But an inflammatory disposition seemed to exist at once in several organs; the patient coughed much; eyes red, as also the lips and tongue. Fever not intense; pulse retained the same character, it seemed as it were to rebound under the finger; another bleeding appeared to be indicated; two palettes of blood were drawn from the arm, the blood resembled a soft clot, without a buffy coat. (Honied borage, barley ptisan with oxymel.)

During the day the patient relapsed into the same state of depression as on the 10th: in the night his intellects again became disturbed, On the morning to the 12th, he answered questions with difficulty; his voice was tremulous; commencing stupor was imprinted on his countenance. The tongue was red at the edges, white at the centre; abdomen free from pain; one stool; pulse of moderate frequency; continuance of the cough. The brain appeared to be the organ principally affected. (Sinapisms to the lower extremities.)

No change occurred during the day; in the night violent hiccup manifested itself, which still continued on the morning of the 13th; the same state in other respects. (Blister between the shoulders.)

The hiccup had not ceased on the 14th; the patient raved in the night; his features became quite immovable; his eyes avoided the light; the tongue, which was moist, presented only a slight redness at its edges; the abdomen began to become tympanitic; no stool; pulse very compressible, and ninety-two; temperature of the skin almost natural. The following mixture was prescribed, to be taken in spoonfuls: orange-flower water, three ounces; mint water, two ounces; tincture of musk, one drachm (*gros*); laudanum, twelve drops; syrup of violets, one ounce.

After the third spoonful was taken, the hiccup disappeared.

In the course of the day, a lavement of camomile with the addition of twelve grains of camphor was given. The patient drank some mineral lemonade and wine very much diluted.

On the 15th the hiccup had not re-appeared. (Same prescription.)

On the three following days, the state of the patient was unchanged. (The same medicines; fomentations of camphorated oil of camomile on the abdomen.)

On the 19th, the mixture was replaced by four boluses of camphor and nitre, containing each six grains of camphor, and six of nitre, one to be taken every third hour. Tongue nearly natural; abdomen sufficiently soft; stools regular; pulse compressible, and from ninety to ninety-five; countenance still dejected.

On the 20th and 21st, the air of stupor visibly increased, without the other symptoms presenting any change. (Aqueous infusion of quinquina; mineral lemonade; barley water; camphorated lavement; aromatic frictions to the extremities.)

On the 22d, pulse 104; same state in other respects. (Same prescription.)

In the night the patient had for the first time a profuse sweat; it was confined, however, to the face, chest, and upper extremities; it was far from being critical; frequency of the pulse still increased, it being now 120; tongue becoming dry. (Same prescription.)

On the 24th, features altered; spirits very much dejected; tongue entirely dry; pulse 142. (Blisters to the legs.)

He died on the morning of the 25th.

Post-mortem. Nothing remarkable in the brain. Lungs engorged posteriorly. Heart flaccid and empty.

Abdomen. — Stomach distended with the liquids he had taken, and with gas. The entire mucous membrane red and soft; beneath it the laminated tissue perceptibly injected. The small intestine was pale, and free from any lesion as far as half a foot above the ileo-cæcal valve. In this part the mucous membrane presented numerous white elevations surrounded by an equally white tissue. The surfaces of these elevations were as if wrinkled, and uneven; their form was oblong; their diameter equalled that of a twenty sous piece. The mucous membrane assumed a brown colour, to the extent of two or three fingers' breadth at most, above the valve. The inner surface of the cæcum, and ascending colon, presented an intensely livid redness; the remainder of the large intestine, which was filled with fæcal matter of considerable consistence, was white.

This case resembled, at its commencement, several of those already detailed. There was observed headach, general uneasiness, fever, loss of appetite, and nothing else connected with the digestive organs.

These symptoms, combatted at first by means of simple diluents, continued; they were those characterising inflammatory fever, as it is described by Pinel. They were diminished after the application of leeches to the anus; but this amendment was but temporary. Two days after the application of the leeches, all the symptoms re-appeared with increased intensity; the pulse in particular presented that special character often connected with hemorrhage, and which seemed to indicate the employment of bloodletting; a bleeding from the foot was accordingly employed, and was followed by an improvement in the state of the patient; above all, the strength seemed to be increased; one would then naturally think that it was only *oppressed;* and as several organs still seemed threatened with inflammation, one would reasonably suppose that another bleeding would prove as serviceable as the two preceding; this was accordingly employed, but not with the same results. A few hours after its employment, the symptoms became frightfully worse, and we almost instantaneously saw an inflammatory fever, which appeared not at all severe, become changed into a well marked ataxo-adynamic fever; the pulse suddenly changed its character; it became small, and no longer resisted the pressure of the finger. A little meteorism supervened; no other appreciable symptom connected with the digestive organs. Then another plan of treatment was resorted to. Tincture of musk was given for the special purpose of combatting the hiccup which a blister had not removed. This hiccup ceased accordingly a little after we commenced the use of this substance combined with a little laudanum. Different stimulants, such as camphor, nitre, wine diluted with water, sulphuric lemonade, were then given. For four days the disease remained stationary. The tongue presented an almost natural appearance; abdomen soft; stools regular; but the pulse still retained its frequency. The air of stupor did not first diminish; it afterwards increased. Recourse was then had to infusion of quinquina. The very day he commenced to take it, the frequency of the pulse evidently increased: the day after it was still greater. *The tongue became dry*, for the first time, and the patient died in a state of prostration which suddenly became extreme.

The *post-mortem* showed the same lesion in the intestinal follicles as in the subjects of the preceding cases. It also showed, in a part of the large intestine, a redness which is so much the more remarkable, as the individual had never had diarrhœa; finally, the autopsy discovered to us a morbid state of the stomach, more intense than in any of the preceding cases. Is it not a remarkable circumstance, that it is in the two first subjects who took quinquina that we found the

stomach more diseased than in any of the others? I would be inclined to think that it was only towards the last period that the gastritis set in, and that it was of it the patient died. We have found the stomach healthy, and the small intestine exanthematous in other persons who had had the tongue dry and black.—Here we may suppose that the period at which the tongue began to dry coincided with the development of the gastric irritation. But why did it remain in an almost natural state whilst there was only exantheme of the intestine? There are then other conditions, which, independently of the existence of this exantheme, may cause a singular change in the state of the tongue. It is those same conditions, which may be supposed to reside in the innervation, which, with a lesion similar in its nature, in its degree, in its seat, and in its extent, impressed so different an aspect on the diseases mentioned in the preceding cases.

Case 8. — Febrile diarrhœa at the time of admission — Improvement by means of diet and diluent drinks — Suddenly severe nervous symptoms and death — Indeterminate duration of the disease — Treatment by bloodletting and revulsives — Tumefaction of the intestinal follicles — Small red spots in the stomach — Spleen large and soft — Blood liquid.

A man, twenty-eight years of age, who had recently come to Paris, entered the Charité in the month of November, with slight purging and very little fever. Both were nearly checked by diet and diluents, when, without any known cause, the patient fell into the greatest despondency; from thenceforward he was convinced that his death was near at hand, and inevitable. However, the pulse had not become frequent. This state of mind continued for two days. Every effort was used, but in vain, to persuade the patient that his fears had no foundation. — On the third day, Nov. 23, his intellects became disturbed; pulse became hurried: the next day there was intense fever; a little diarrhœa always remained; intellects more disturbed. On the 25th, complete delirium: at six in the morning the patient was found out of his bed, to which by our remonstrances he returned; and, though answering our questions with considerable clearness, he was evidently still disturbed in his ideas; his eye haggard; pulse very frequent; skin very hot; face covered with a profuse sweat; tongue still moist, and its apex red.

On the 26th, he lay on his back, his eye fixed, and his look melancholy; face red, and covered with sweat; he viewed those around him with a disdainful and angry frown, and refused to answer questions or to show his tongue; when questioned he frowned, and uttered with a strong voice some unconnected words; arterial pulsations so frequent that they can be no longer counted; death occurred on the following night.

Dating from the 23d of November, leeches were several times applied to the neck and to the anus; the leeches were covered with blisters; simple diluents were given internally.

Post-mortem. Muscles were brown and gluey (*poisseux*).

The brain and its membranes presented no appreciable lesion.

Lungs engorged posteriorly. A considerable number of veins, gorged with blood, passed over the cellular tissue subjacent to the mucous membrane of the stomach. The latter membrane presented, towards the great cul-de-sac, five or six red patches, in other parts it was white and healthy. The small intestine was healthy, to within a foot above the ileo-cæcal valve. In this part there was observed a number of elevations of different appearances. Some of them, red and conical, were nearly the size of a pea; others, similar to the preceding in form and extent, differed from them in the whiteness of their colour. Others, much larger, round or oblong, red, or of a duller white than the rest of the membrane, had a diameter equal to that of a ten sous piece for the smaller, and of a five franc piece for the larger. In the intervals between them, the mucous membrane was sometimes white and sometimes red. This eruption, at first distinct, became

confluent near the valve. Immediately above the latter, several elevations were combined into a single one, so as to form a large patch, which occupied nearly the entire round of the intestine.

The cæcum was very much injected ; the mesenteric ganglions were red and engorged. The spleen was remarkable for its size and extreme softness.—A liquid black blood was found in the aorta, as also in the heart, the tissue of which was pale and flaccid.

This case presents three stages. — In the first, the digestive passages appear to be especially affected, and the fever to be merely symptomatic of the intestinal irritation evinced by the diarrhœa. At this stage the case presents nothing serious ; diet and some diluents suffice to diminish the purging, and to calm the fever. Then commences the second stage, during which one might reasonably suppose that the patient is becoming convalescent. It is then that the mental dejection, into which, without any known cause, the patient fell all at once, appears as a prelude to a state of delirium, in the midst of which the patient dies. This mental dejection, so far from being the cause of the nervous symptoms, was, probably, itself one of the symptoms of the cerebral affection, which, however, escaped all anatomical investigation. The brain, the functions of which had been so perceptibly disturbed up to the time of death, appeared healthy under the scalpel. What did we find to account for such serious functional disturbances ? Nothing but some slight red spots in the stomach, and, as in all the other cases, an engorgement of some intestinal follicles. In all this where is the cause of the symptoms ? Very probably, as the former case mentioned, and some others to be mentioned hereafter, tend to prove, at the time the patient entered the hospital, he already carried in the intestine most of the lesions found there after death : yet there was then no serious symptom, and those which did exist yielded to the most simple means. Did the intestinal exantheme suddenly take on a rapid degree of increase after having first retrograded, or at least after having remained stationary ? If, in this case, there is obscurity in explaining the symptoms, is there not much more difficulty in accounting for death ? The patient died when he was still full of life, when, a little time before expiring, the energy of his movements, and the strength of his voice, prevented us from foreseeing so rapidly fatal a termination.

In fine, what relations are there between the symptoms and death in this case, and the state in which the blood and spleen were found ?

SECTION II.

CONTINUED FEVERS, WITH LESION OF THE FOLLICLES IN THE STAGE OF ULCERATION.

In the cases now mentioned, we have seen a lesion always identical coincide with the symptoms of different continued fevers. In the persons who died towards the sixth day, as in those who died after the thirtieth, we found this lesion always similar to itself. The lesion observed was uniformly follicles, which were become more prominent on the surface of the mucous membrane, but the texture of which was readily recognised. In the cases which are to follow, we shall find something else : the follicular layer, whether, after having been changed into a hard, grey, brown or black mass, similar to an eschar, or without having undergone this change, and without being gangrenous, shall disappear, and in its place we shall find ulcerations very variable in their extent, though varying but little in their form and their seat. Often also we shall find other ulcerations occupying the place of a certain number of isolated follicles, the destruction of which we

shall be able to trace from the summit to the base. By reading these different cases we shall soon satisfy ourselves that the transition of the follicular disease into the state of ulceration does not happen at a period always the same. Thus, as we have already seen, there are cases where, after more than thirty days' duration, no follicular patch is as yet ulcerated; there are other cases, on the contrary, where, a very few days after their development commenced, they came to be ulcerated. — We shall commence by citing a case of this latter kind, in which, on an exanthematous patch, there was found but one single ulceration of very small extent, which, by increasing in depth, produced a fatal perforation. This should be compared with a former case, where an intercurrent pneumonia gave rise also to a premature death. Both seem to us important, inasmuch as they show that at a period of fever not at all far advanced, and when there as yet exist but very mild symptoms, there exists in the intestine the same lesion as that discovered in cases infinitely more alarming.

Case 9. — Slight continued fever — Yellow coating of the tongue; constipation at first, then slight diarrhœa — Tumefaction of the follicles; one single ulceration on one of the patches, which terminated in perforation of the intestine — Death by peritonitis on the thirteenth day of the fever — Communication between the digestive tube and the peritoneal cavity — Pulmonary tubercles.

A man, about eighteen years old, of a lymphatico-sanguineous temperament, had always enjoyed very good health. On the 13th of October, at seven in the evening, he felt dizziness and general uneasiness. All the night he experienced a burning heat. The day after, in the same state; anorexia, one alvine evacuation; profuse sweat at night. On the 15th he entered the Charité. He again perspired on the night of the 15th. On the visit of the 16th, he presented the following state: —

Face red, eyes very bright; aching of the limbs; tongue covered with a yellowish thick coat; lips red, bad taste in the mouth; anorexia; little thirst; abdomen soft, and free from pain; no stool for the last twenty-four hours; pulse frequent, tolerably full; skin moist.

After a lavement having been given, the patient had but one stool up to the next morning. On the 17th, six grains of ipecacuanha were given; the patient vomited twice a considerable quantity of bile; he did not go to stool. In the night he slept well; he awoke in a state of moisture.

The next morning, the yellowish coating of the tongue was gone; it was now of a fine vermilion colour; bad taste of the mouth gone; pulse not frequent; temperature of the skin nearly natural.

From the 19th to the 23d, a slight febrile disturbance continued; anorexia; same state of the tongue. A stool each day after the lavement. (Demulcent ptisans, &c.)

On the 23d the tongue was red; the frequency of the pulse had increased considerably; skin burning hot; abdomen painful on pressure. Two liquid stools took place within the last twenty-four hours. This exasperation of the symptoms was combatted by the application of eight leeches to the anus. (Barley ptisan; diet.)

In the day the abdominal pains assumed a frightful intensity. The patient began to vomit, during the night, a great quantity of green bile.

On the morning of the 24th, we found him lying on the right side; eye quite extinct; countenance pale and cadaverous. The slightest pressure on the abdomen, or the least motion, excited the most intense pain. Continual nausea harassed the patient, which was followed from time to time by some bilious vomiting. The respiration, which was high and hurried, was performed solely by raising the ribs; pulse very frequent and weak; skin not hot.

The presence of peritonitis no longer questionable. M. Lerminier suspected

the cause to be perforation of the intestine. (Forty leeches to the abdomen; oily fomentations; mild sinapisms to the legs in the evening; flaxseed ptisan.)

The vomiting continued for the entire day. On the 25th, at nine in the morning, abdomen less painful on pressure, but it was increased in size, and presented a shining appearance; on percussion it yielded in every part a dull sound; no fluctuation perceptible. Extremities cold, pulse thready. The eye, however, still retained a somewhat natural expression: intellect clear, speech free. (Blisters to the thighs.) He died at five in the evening.

Post-mortem, fifteen hours after death. Albuminous flocculi, extended like false membranes, united the convolutions of the small intestine to each other. A turbid, milky, very fœtid serum was effused into the two flanks, and into the cavity of the lesser pelvis. Beneath the albuminous flocculi, the peritoneum was intensely injected.

Mucous membrane of the stomach healthy; over the extent of about one foot above the ileo-cæcal valve, there existed from five to six oval elevations of a white colour, as also in the mucous membrane which surrounded them. The centre of one of them was ulcerated; the bottom of this ulcer, formed by the serous membrane, presented at its centre a round perforation, from a line and a half to two lines in diameter. Around these elevations, the mucous membrane was studded with several small, white, miliary pustules, scarcely forming a projection above its surface.

A tuberculous mass, the size of a small nut, was found in the summit of the right lung.

The principal circumstance which renders this case interesting, is the existence of a well-marked dothinenterite in an individual, who, up to the period of the attack of the peritonitis, presented merely the symptoms of a continued fever apparently mild. It was, with respect to the symptoms, *a slight bilious fever;* the abdomen was soft and free from pain in every point. The tongue, free from redness, presented a thick coat, which disappeared after a gentle vomit. After the use of this, the gastric symptoms disappeared; but a little fever remained, and presently a slight diarrhœa succeeded to the constipation which existed since the commencement of the disease. It was from the tenth to the eleventh day that this purging appeared. Did its invasion mark the period when one of the exanthematous patches began to ulcerate? Nearly at the same time supervened the peritonitis, the cause of which was discovered to be the intestinal ulceration, which, by extending in depth, had occasioned the perforation of the parietes of the ileum.

Thus in this case, to explain the group of symptoms observed during life, before the attack of the peritonitis, there is found a disease of the follicles; they are swollen without being red, and one of the patches which they constitute by their union is already ulcerated. We shall not find more intense lesions in other cases, which shall, however, present to us symptoms of a much severer nature. On the other hand, we have already seen in the former observations, an instance wherein the symptoms are almost similar to those presented by the subject of the present case, and in which, to explain these symptoms, which were those of a rather slight bilious fever, we still found the same lesion of the intestinal follicles. It is not then in typhoid fevers alone that this lesion exists.

We should note, in this case, the coincidence of the healthy state of the stomach with a red colour of the tongue; and we should recollect that, at least in this individual, the vomiting which was excited had not the effect of replacing the signs of gastric derangement by those of a more intense gastritis. After the vomit the tongue assumed a natural appearance, and it was only at a subsequent period it became red, at the time when the diarrhœa appeared.

The existence of some tubercles in the summit of the lung is worthy of being

remarked in an individual, who, being attentively examined during the entire course of the disease, presented no symptom which could induce us to suspect such a lesion; he had considerable flesh, his breathing appeared free, and he had no cough.

Case 10. — New arrival at Paris — Symptoms of slight bilious fever — No improvement after a vomit — Epistaxis followed by a sensible improvement — Hope of approaching convalescence; sudden death on the fourteenth day — Some ulcerations towards the termination of the small intestine — Pulmonary tubercles.

A tailor, nineteen years of age, residing in Paris for the last six weeks, felt on December the 8th, without any known cause, a violent shivering, followed by great heat, without sweat. On the following days he felt continued heat, some headach, great physical and mental dejection; distaste for all food, and no alvine evacuation. Having entered the Charité on the 25th, he presented all the characters of what is called bilious fever. (Two grains of tartar emetic were given.) The patient did not vomit, and went several times to stool. In the night he sweated profusely. However, on the 26th, the fever still continued; the tongue was red. Up to the 31st, the state of the patient remained nearly the same. He had some diarrhœa; sweated every night; he only took some demulcent ptisans. On the night of the 30th (the fourteenth day), he had profuse epistaxis, and at the same time all the other symptoms improved. This hemorrhage might be reasonably considered as critical. In the course of the day the patient found himself tolerably well; the fever was very moderate. Towards noon he arose from bed to go to the night-chair; he had scarcely returned to the bed, when he expired.

Post-mortem. The body, when opened on the next day, presented no lesion which could account for so sudden a death. The lungs merely presented some very slight engorgement posteriorly; the summit of the right lung contained five or six large crude tubercles, without hepatisation around them.

The inner surface of the stomach was of a white colour, with a slight rose tint. To the extent of some fingers' breadth above the cæcum, the mucous membrane of the small intestine presented seven or eight small ulcerations, with slight redness around them; the cæcum was red.

This is the third case in which we ascertain the state of the digestive tube in an individual who presented nothing but symptoms of slight continued fever (the bilious inflammatory fever of authors), without any complication, adynamic or ataxic. Here, then, are three cases, where the symptoms of this fever coincide with one and the same species of intestinal lesion, a lesion which is only, in these three cases, in different degrees: it is simple exantheme, in the subject of the first case, who died on the sixth day; it is an exantheme with commencing ulceration, in the subject of the ninth case, who died on the third day. In the subject of the present case, who died on the 14th or 15th day, we find merely ulcerations. But what is more remarkable in this latter case is, that notwithstanding the presence of the ulcerations, there was since the last two days a perceptible tendency to improvement. As in the subject of the ninth case, the stomach was healthy. As in that case, a vomit was given; but this treatment produced here no good result.

What now was the cause of the sudden unforeseen death of this patient? — Anatomy was unable to solve the question.

Among the cases of sudden death, which cannot be explained by any appreciable lesion, the following appears to us one of the most remarkable.

A boy, from four to five years of age, entered the Hôpital des Enfans, having tinea capitis for some months; he was attacked with pulmonary catarrh

and diarrhœa. This twofold attack yielded in a little time to demulcent treatment.

The child had still a little cough, but the purging had entirely ceased; he got out of bed and walked about every day. On the 23d of August he was sprightly as usual, got up, went to the night chair, then went to sit down, saying that he was disposed to sleep. It was imagined that he really was asleep. Seven or eight minutes after he died.

No appreciable lesion was found in the brain or its appendages; lungs healthy, as also the heart and large vessels. The inner surface of the stomach presented a white colour, with a slight rose tint, and some red spots here and there; the rest of the digestive canal was in general white, injected at intervals; the other organs were healthy.

Does the heart, in cases of this kind, cease to beat all at once? Is not death then a prolonged syncope? Are the functions of the brain suspended primarily and all at once? Thus individuals die instantaneously, who have received a violent electric shock; animals who have been poisoned with hydrocyanic acid, &c.

Be this as it may, observations of this kind should make us very circumspect in pronouncing whether such a lesion observed in a dead body should be really considered as the cause of the disease, and of death. On the other hand, the opening of bodies sometimes discovers in the organs most important to life, considerable alterations not announced by any symptom. How difficult is the attempt of that person who seeks to raise a corner of the veil with which nature envelopes her works, whether she tends to create, to preserve, or to destroy! *Homunciones nos! observata colligimus legesque condimus ex iisdem, dum interim nos sæpe in observatis vel unicum lateat, ex quo vera rerum dependeat notities.* (De Haen.)

Let us now carry our attention to the pulmonary phthisis, of which the patient carried the germ, and which had not yet revealed its existence by any species of symptom. The tubercles contained in the summit of the left lung might have remained stationary for a length of years, and not have prevented the individual from attaining the mean duration of life; but in persons so circumstanced, the slightest irritation directed to the lungs is attended with the worst consequences; it contributes very much to augment the tubercular diathesis, and to hasten the softening of the tubercles already existing. Such is the first stage of the phthisis of Bayle. The autopsy discovers it in individuals who have scarcely had a slight cold during life. It is principally from these facts that Bayle has maintained that pulmonary tubercles were not a product of inflammation, in the sense ordinarily attached to this term. Those who maintain the contrary doctrine are obliged to admit a disposition peculiar to tuberculisation in the individuals in whom the development of the tubercles has succeeded to an inflammation of the bronchi, or of the tissue of the lung. But does not this sort of idiosyncrasy resemble very strongly the innate germ of phthisis, which Bayle admitted, and for which he has been so severely reproached?

Case 11.—Disturbance of the intellect without any other serious symptom—Tongue dry from time to time—Strength still retained—Unexpected death—Ulcerations in the small intestine.

A German, fifty-six years old, entered the hospital on the 29th of November. He could give no account of his previous state. He seemed absorbed in religious feelings. Countenance pale and meagre; strength seemed well preserved; tongue dry and pale. He went to stool as in health. Skin hot; pulse frequent and hard; breathing natural; chest, when percussed, sounded well.

The marked stupor of this patient's intellects, the species of ecstasy in which he was, might be considered as the prelude to ataxic fever. The indication

seemed to be to unload the brain. (Twenty leeches to the anus; barley ptisan; emollient lavement.)

On the next day, his state not altered. The following days the fever still continued; intellectual faculties nearly abolished; tongue pale, and alternately moist and dry; strength still preserved. On the 8th of December, the state of ecstasy more marked than ever; answers slow and confused. (Bleeding to two palettes.) No good result from it: his state even worse than the day before. Tongue brown; had some transitory delirium and considerable fever; coughed a little. The continuance of the strength of the pulse appeared to be connected with hypertrophy of the left ventricle. The stethoscope, in fact, when applied to the precordial region, was a little repelled; with the hand nothing unnatural could be discovered in the pulsations of the heart. Still the patient was even now able to sit up; he ate two small biscuits with an appetite; his state remained unaltered during the day, and to our great surprise he died that night.

Post-mortem, twenty-eight hours after death. The subarachnoid cellular tissue was infiltrated with a considerable quantity of limpid colourless serum. The parietes of the left ventricle were, as we anticipated, very much hypertrophied, and its cavity diminished. Old cellular adhesions were found in the two pleuræ. The base of the right lung was of a greyish red colour, its tissue, which did not crepitate, was reduced to a pulp beneath the finger; every where else, the lungs crepitated very well; an enormous quantity of frothy colourless serum flowed from them on making an incision into them.

The stomach was dilated; its inner surface presented, at the great cul-de-sac, and along the anterior surface, to nearly as far as the pylorus, a brown colour, with a mixture of small black spots; this colour and these spots existed in the softened mucous membrane. The inner surface of the small intestine was very white to near the cæcum; it was, however, very much narrowed in all its extent. At five fingers' breadth above the cæcum there was an ulcer of considerable breadth, the bottom of which was formed by the muscular membrane laid bare, and the edges were formed by the mucous membrane, which was tumefied, soft, and black; this membrane presented the same appearance as far as the cæcum, the mucous membrane of which was white; the rest of the large intestine was healthy.

In this patient we find nearly the same lesions of the digestive tube as the preceding; and yet what a difference in the symptoms! In this case also death was unexpected. On examining the state of the different functions, considering more particularly the circumstance of the strength being still retained, could one anticipate that a few hours after the visit, the patient would have died without any new phenomenon developing itself? Can we seek the cause of this in the very extensive œdema of which the lungs were the seat? Can we suppose that during the night of the 10th of December, the lungs became suddenly engorged with serum, in the same manner as we see serous accumulations take place, sometimes almost instantaneously in other parts of the body? Is it rather in the organic state of the heart we should place the cause of death? We know sudden death is by no means an uncommon occurrence in individuals affected with aneurisms of the heart, though even but little advanced, and which do not as yet manifest their existence by any well-marked symptom. It seems that in several of these patients the heart momentarily loses the power of contracting; after that the blood no longer reaches the brain, the breathing becomes suspended; and if this cessation of the heart's action is continued, the syncope changes into real death. We may remark that none of these circumstances existed in the preceding patient, whose death came on even still more unexpectedly.

Was the peculiar state of the intellectual faculties a sympathetic phenomenon connected with the inflammation of which the stomach and the termination of

the small intestine were the seat? Did the entire disease exist in the digestive tube?

The inflammation of the right lung existed for some days at least, as was proved by the state of the organ; but could it even be suspected? Occupying only the base of the lung, it could not be recognised either by percussion or auscultation; the breathing was perfectly free, the sputa were absent, and as to the very slight cough which existed, should it not reasonably be referred solely to inflammation of the bronchi?

The character of the pulse, in this patient, likewise merits all our attention. How insufficient are the signs derived from the arterial pulsations, when we have not at the same time regard to the state of the heart!

Case 12.—Previous mental and bodily distress—Remittent fever combatted by quinquina—Disappearance of the daily shivering; continuation of the same medicine; ataxo-adynamic symptoms—Death towards the 25th day—Change of the follicular patches into a hard mass like an eschar—Milky infiltration of the cerebral membranes—Brain dotted—Softening of the lungs.

A carpenter, twenty-six years of age, of a strong make, living in a moist situation, experienced some mental distress and considerable bodily fatigue at the commencement of the year 1820. Towards the 15th of October of the same year, he was seized with spontaneous lassitude, pains in the kidneys and limbs; he lost all appetite. These symptoms continued on the following days. He had a regular shivering fit every day towards two o'clock at noon, which was replaced by an intense heat, not followed by any sweat. This man consulted several medical men who made him take a vomit and two purgatives; he then drank a bitter ptisan. He had profuse diarrhœa from the day he took the vomit. He entered the Charité on the 1st of November, when two palettes of blood were taken from him, and twenty leeches applied to the anus.

On the 2d of November, the blood drawn the preceding day was covered with a buffy coat of little consistence; the patient presented the following state: —general lassitude, sleeplessness, tinnitis aurium, nostrils dry, mouth bitter, tongue yellowish, having a tendency to become dry without any redness; little thirst, anorexia, abdomen soft, a little painful on pressure; five very liquid stools; breathing full and easy; speech short; pulse full and frequent; skin a little moist. The daily shiverings indicated the presence of remittent fever, which was combatted by a watery infusion of quinquina sweetened with syrup of quince. (Barley water; sinapisms to the legs.)

Shivering entirely absent. On the next morning there was a sensible improvement; the patient had some sleep; tongue moist; pulse less frequent; gentle heat of the skin; abdomen soft and free from pain, continuance of the diarrhœa. (Same prescription.)

This improvement was but transient, and on the 4th, the most alarming symptoms existed. An air of stupor; extreme prostration of strength; tongue dry and black; great thirst; abdomen free from pain; two stools only; pulse very frequent. (Two blisters to the legs, frictions with camphorated alcohol on the extremities; the same drinks, and some mineral lemonade, and a little wine.)

In the afternoon the patient commenced to rave; his ideas were very incoherent for the entire night. On the morning of the 5th, the delirium continued; the other symptoms had not changed. (Four leeches were applied behind each ear, and two blisters were placed on the thighs.)

On the 6th, the same state. (Eight leeches more to the neck.)

On the 7th, less delirium, but extreme dejection; features entirely decomposed; sensation of acute pain in the loins; burning thirst; tongue black; abdomen tympanitic and free from pain; five or six liquid stools passed in bed; skin dry and hot; pulse very frequent, and possessing considerable resistance. (More leeches to the neck.)

On the 8th, the countenance indicated the most extreme dejection ; breathing very much accelerated: tongue clammy, less dry than on the preceding days ; abdomen tympanitic ; intellect quite gone.

He died on the 9th, at five o'clock in the morning.

Post-mortem, thirty hours after death. *Cranium.* — A turbid milky serum existed in small quantity in the subarachnoid cellular tissue of the upper surface of the two cerebral hemispheres. The cerebral substance, of ordinary consistence, was dotted with red points ; black liquid blood distended the sinuses of the dura mater ; a small spoonful of limpid serum existed in each of the lateral ventricles.

Thorax. — Heart proportioned to the size of the individual and to the development of the muscular system. The two lungs were of a livid red colour posteriorly and at their base ; they were engorged with an enormous quantity of reddish serum ; their tissue crepitated, but was extremely soft ; it was reduced to a sort of a pulp under pressure of the finger.

Abdomen. — The stomach was moderately distended with a brownish liquid and with gases ; its inner surface was of a greyish white colour in all its extent, except along the small curvature, where we observed two or three red bands, which, without assuming a regular form, were continued from the cardia to the pyloric extremity. On placing this part of the stomach between the light and the eye, there was distinctly perceived a number of vessels, which were ramified, and between them several small reddish points, which appeared to be formed of effused blood.

The small and large intestine, when examined internally, presented a great number of patches of a bright red colour, presenting, on an average, about two or three fingers' breadth in length, and one, or at most two, in breadth. These patches were formed of ramified vessels, around which there existed some red points ; they were seated in the cellular tissue which united the peritoneal to the muscular membrane ; the corresponding portion of mucous membrane was not changed.

The small intestine, when examined internally, was healthy along the upper four-fifths. The lower fifth, hard and bosselated (*bosselé*) externally, presented internally numerous elevations, of an oval or irregularly circular form, covered with a sort of *detritus* of a yellowish grey colour, which was raised by scraping with the scalpel. Beneath this detritus there was found a hard tissue of a violet red colour, appearing to be formed of submucous cellular tissue considerably thickened. Of these elevations the most extensive were from three to four inches in diameter in every direction ; the smallest were scarcely from two to three lines. In the intervals between them the mucous membrane was very much injected. Near the ileo-cæcal valve, and even on this valve, they were so close that they formed but one single bosselated and wrinkled mass, of a yellowish grey colour. This alteration terminated abruptly at the entrance of the cæcum. The inner surface of this latter intestine was very red, as also that of the ascending colon. These two intestines were filled with a reddish and as it were bloody mucus ; the mucous membrane of the rest of the large intestine was very white.

The alteration of the intestinal follicles in this case differs from that presented to us in the preceding cases ; it is no longer simple tumefaction of the glands (*plaques*) that is observed, it is their change into eschars. Had the individual lived longer, these eschars would have been detached, and ulcerations would have replaced them. This is one of the morbid forms which Peyer's glands present before becoming ulcerated ; the cure could not be effected, without their ulceration had previously taken place. Here the follicular layer is no longer distinct : in its place we find merely a hard, yellowish mass, removeable by the scalpel, as a sort of detritus. In the following observations we shall see this

layer, already so altered, assume still further all the characters of a true eschar, become separated in shreds from the subjacent tissues, and leave in their place ulcerations of variable size. This case then presents to us an instance of the transition from the first to the second stage of dothinenteritis: there is no doubt, if the individual had lived longer, but that ulcerations would have been found in his intestine.

If we now inquire what were the symptoms which coincided with this state of the intestine, we shall find that these symptoms are similar to those already presented to us by other individuals, in whom the dothinenteritis had not gone beyond the first stage.

With respect to the symptoms, the disease which forms the subject of this case presents three stages to be considered. In the first we see nothing but those general symptoms, which precede most local diseases, pneumonia as well as enteritis, but which, however, are more frequently the precursors of gastro-intestinal inflammations. The second stage is marked by the existence of a remittent fever, which becomes a simple continued fever after the exhibition of quinquina. These accessions, which thus returned every day, but which, commencing with shivering, never terminated by a sweat, were they connected with the intestinal exantheme? Were they but an additional phenomenon? We shall not decide these questions; but with respect to treatment, we shall observe that if the quinquina prevented the return of the shivering, and if it thus had a marked anti-periodical action; if even the day after it was given for the first time, there was a perceptible improvement; if in particular, we found the tongue moist, its continual administration on the following days was followed by considerable prostration, and most serious nervous symptoms, which were not removed by leeches applied to the neck and behind the ears. These nervous symptoms were connected, in this particular case, with a morbid state of the meninges. As in other cases already cited, we found the gastric mucous membrane injected and dotted, in a person who for several days had taken different stimulating drinks, quinquina, wine, sulphuric lemonade.

Case 13. — Previous fatigue — Fever at first remittent — Bad effect of an emeto-cathartic — Adynamic state becoming more and more marked after bloodletting, not diminished by tonics — Death towards the 46th day — In the small intestine follicular patches attacked with gangrene and ulcerated — In the large intestine white ulcers without any redness around them — Submucous sanguineous effusion in the stomach — Another effusion of blood in the pleura — Liquid blood in the vessels; aorta red — Spleen large and soft.

A quarry-man, twenty-eight years of age, brown skin, black hair, muscles well developed, was very much harassed with work during the first half of the month of July. Towards July the 20th, he commenced to feel ill; intense headach; his appetite was lost, strength impaired; he was given an emeto-cathartic; he vomited copiously, and went several times to stool. From this period he had diarrhœa. Dating from the commencement of August, he kept his room, and soon kept his bed. All the day he experienced a burning heat; at night he felt considerable cold in the feet and legs; he sweated very much every night. He took no active medicine up to August 28th; he then entered the hospital and presented the following state: —

Sub-orbital headach, face red, eyes brilliant, pains in the limbs, general debility; tongue covered with a slight whitish coat; bitter taste in the mouth; thirst; anorexia; abdomen free from pain, and soft; four or five stools within the last twenty-four hours, preceded by slight colics: slight cough; sensation of heat in the throat, deglutition painful; pulse frequent, of ordinary strength; skin hot, and a little moist.

No precise indication presented itself; the symptoms were sufficiently moderate to induce one to think that they would yield to simple diluents, diet, and repose. (Rice water with gum.)

The patient went but twice to stool, up to the next morning. Partial cold in the evening and sweat during the night, as usual. At the visit of the 29th, there was still headach, redness of the face, and injection of the conjunctivæ; cough more frequent; pulse fuller. Thus the state of general erethism had increased. (Bloodletting to four palettes.)

The blood drawn from the vein united into a large clot, which was soft and without the buffy coat. The febrile exacerbation was very great in the evening.

On the 30th, the redness of the face had been succeeded by a remarkable paleness; the tongue, divested of its whitish coat, presented a uniform red colour; lips, teeth, and nares dry; four liquid stools had taken place; abdomen soft; pulse frequent, and very compressible; heat of skin not much raised. (Barley ptisan with gum; strict diet.) Exacerbation in the evening, without the sensation of previous cold; sweats and distressing raving during the night.

On the 31st an air of stupor; same state in other respects. (Two blisters to the legs.) In the evening a slight disturbance in his ideas.

September 1st, air of stupor more marked; patient had now become very deaf; his intellect in other respects sufficiently clear; he had got out of bed thrice to go to stool. Tongue dry; abdomen tympanitic; pulse very frequent, and compressible. (Six leeches behind each ear; embrocations of camphorated oil of camomile to the abdomen; camomile lavement with the addition of twelve grains of camphor; barley ptisan.)

The leeches acted very well; and on the morning of the 2d, several of the bites were still bleeding; the stupor went on increasing. The leaden cast of the countenance, the dull expression of the eyes, which were half-covered by the upper eyelid, the increased deafness, the slowness and uncertainty of the answers, the extreme weakness of the pulse, which was as it were tremulous, and which beat above 130 a minute, the particular manner in which the patient lay, he always sliding down towards the foot of the bed, announced the existence of an adynamic state, which called for urgent treatment. The tongue was at the same time dry and pale, the abdomen tolerably soft; he had had but two stools. Two more blisters were applied to the thighs; those of the legs were dry. (Infusion of quinquina with gum, decoction of polygala, lavement and embrocations as on the day before.)

In the evening the state of the patient seemed to have undergone a slight improvement; the expression of the countenance was somewhat more animated; he lay of himself on the right side; the pulse was somewhat raised; three or four of the leech-bites were still bleeding, notwithstanding the efforts made to stop them.

During the night the patient was completely delirious.

On the 3d, the tongue was moist; the teeth were covered with black crusts, some lenticular spots, of a livid tint, were scattered over the epigastrium. (The same drinks; lavement with an ounce of quinquina and twelve grains of camphor; liniment of ammonia with the addition of an ounce of tincture of lavender to rub the extremities.)

Up to the following morning the patient continued in a continued state of coma.

On the 4th, the countenance became cadaverous; gave no answers to questions; put out his tongue, when asked, which was pale, moist, and slightly incrusted at the centre. Lips and teeth black; four involuntary stools; pulse 144. Some wine was ordered.

The patient went on sinking, and died at five o'clock the next morning.

Post-mortem, twenty-nine hours after death. Brain and its membranes remarkably pale; ventricles nearly empty.

Thorax. — Heart, empty of blood, presented a soft, flaccid tissue, entirely

divested of colour; a great quantity of bloody serum, of a deep brown colour, engorged both lungs. About a pint of a black liquid, presenting all the physical properties of venous blood, was effused into each pleura, which presented no other trace of inflammation.

Abdomen. — The stomach, distended with liquids, presented externally in that portion of it which is in contact with the spleen, a livid red tint; internally, it had everywhere, except in this portion, a greyish white tint; the mucous membrane was of ordinary thickness, and may be readily detached under the form of a membrane. In the splenic portion there existed four or five large red spots, owing to a sanguineous infiltration seated in the submucous cellular tissue, and which had communicated its colour to the membrane itself.

The duodenum, jejunum, and the upper third of the ileum were pale and contained a considerable quantity of yellow bile. But in the lower third of the ileum there existed different species of lesions. From the inner surface of the intestine there projected several patches of a more or less deep red; they were raised one or two lines above the level of the mucous membrane. Their form was irregularly oval; the smallest equalled a pea in diameter, and the largest that of a thirty sous piece. They were formed of thickened mucous membrane. In the intervals this membrane was but slightly injected. Several of these presented in some points of their surface ulcerations, the bottom of which was formed of laminated tissue. Others were partly transformed into a yellowish tissue, altogether similar to an eschar in all its physical properties. Others were entirely changed into this same tissue; the colour was not removed by repeated washing; it was necessary to tear it in order to separate it from the subjacent tissues; and it could not be confounded with fæcal matter. In other parts these eschars were partly removed, and thence resulted eschars of a more or less irregular form, the bottom of which consisted of the laminated tissue which had remained healthy. In one or two ulcerations, the eschar, which had been almost detached, was held on only by a very thin pedicle. In fine, other ulcerations no longer presented any trace of them; a large eschar covered the upper surface of the ileo-cæcal valve.

The mucous membrane of the cæcum and of the three portions of the colon presented a considerable number of small rounded superficial ulcers, the edges and bottom of which were white; they seemed progressing towards cicatrisation; the mucous membrane was pale in the intervals between them.

The spleen was very large; the aorta contained a small quantity of black liquid blood; its inner membrane was of a uniform red colour.

In this case the different stages, and the formation of intestinal ulcers may be very clearly traced. We find at one and the same time in the small intestine, 1st, follicular patches simply tumefied; 2dly, these same patches transformed into a grey, brown, or yellow tissue, resembling eschars; 3dly, these eschars themselves partly detached; and held down to the subjacent tissues only by their shreds, etc.; 4thly, in their stead, in fine, ulcerations, at the bottom of which cellular tissue exists, healthy or diseased. In the large intestine it is still ulcerations which are met; but no trace of exantheme is found; the ulcerations themselves have a peculiar appearance: they are white at their edges, as at their bottom. This latter is formed of cellular tissue in a perfectly healthy state; the membrane surrounding them is equally devoid of colour. It is evident that in this large intestine there existed at a period considerably remote from that of death, a morbid process which became less and less active, and that the ulcerations discovered there tended to cicatrise. Remark also that the profuse diarrhœa which the patient experienced at the commencement, and which followed the emeto-cathartic given at this period, diminished progressively, and that it was but very slight two days before death.

There is another very remarkable circumstance in this case. Let us recollect the mildness of the symptoms presented by the patient on the 28th of

August; let us recollect all the symptoms of reaction presented on the day after; to meet these, did not bloodletting seem to be indicated? Yet scarcely sixteen ounces of blood were taken from a vein in the arm, when all at once the tongue became red and dry, the patient fell into a decidedly adynamic state, and one which appeared real, if we are to judge from the aggregate of the phenomena which presented themselves. After the application of blisters to the legs, the prostration increased; it became extreme after more blood was abstracted by leeches, the bites of which bled very profusely. We should also remark as one of the consequences of the general state, the extreme difficulty experienced in endeavouring to arrest the bleeding from some of these bites. Recourse was then had to tonic mixtures, and tonic lavements; no benefit resulted from them.

In this case were the bleedings merely of no use? Were they not directly injurious? One would be inclined to think so, on reflecting with what rapidity, after the bleeding, a very unfavourable state succeeded a combination of symptoms which presented nothing alarming. Shall we admit that, in this individual, who was apparently very strong, the excessive fatigue experienced during the great heats of July had so exhausted the innervation that the sudden abstraction of a certain quantity of blood readily and easily produced an adynamic state? Shall we admit that this state of exhaustion of the innervation, which, at the same time that it showed itself externally by special symptoms, occasioned also the mode of termination of the intestinal affection, produced also the gangrene and ulceration of the follicular patches? Thus let a slight redness develope itself in any point whatever of the skin, it will terminate promptly in resolution, if the patient's strength is still good; on the contrary, it will terminate in gangrene and ulceration, if the patient be in a state of greater or less debility. No doubt, in thus explaining the unfavourable symptoms which manifested themselves in this individual after the bleedings, we merely lay down an hypothesis; but is it not one of the most probable which can be proposed? Has it not in its support a greater number of other cases wherein ataxo-adynamic symptoms were also seen to follow so closely on bloodletting, that one might reasonably conclude that these symptoms had been at least favoured in their development by loss of blood, whether too profuse, or ill-timed? Besides, is it not also an hypothesis to admit, in order to account for the phenomena, that immediately after the first bloodletting, the intestinal inflammation was so much aggravated as to change a disease hitherto mild, into a most serious affection? If this exasperation of the symptoms after bleeding had been observed only once, such an explanation might no doubt be adopted; but if bloodletting has been observed to be followed by such phenomena a great many times, would it not be extraordinary to suppose that a means which is usually considered to remove, or at least moderate, inflammation in general, has on the contrary produced an increase of the intestinal inflammation? If this supposition be objected to, and if, on the other hand, it be no less objectionable to think that two phenomena so often seen to succeed each other, presented themselves together only by mere accident, there will now remain but two hypotheses: 1st, it will be admitted that intestinal inflammation is of a nature altogether specific, and that bloodletting does not suit it; but this hypothesis will be soon overturned; for how often have we seen the symptoms of this inflammation moderated after bloodletting? 2dly, it will be said with us, that bloodletting is injurious in a certain number of cases, where the innervation is in such a state, that everything which tends to deprive the nervous centres of energy, tends also to destroy life, by producing those different disturbances of innervation which are called ataxic or adynamic symptoms, at the same time that sanguineous congestion is seen to progress towards gangrene or towards ulceration.

In the case which furnished to us these reflections, we shall not lose sight of some remarkable alterations observed principally in cases where, whether pri-

marily or after the absorption of miasms, the innervation has been seriously influenced. Let us consider those ecchymoses of the stomach, those effusions of blood into the pleura, those petechiæ some days before death; does not this also exist in the typhus of Europe, whether by infection or contagion, in the yellow fever, and in scurvy? Is not this also observed in several cases of small-pox, in which it is also very difficult to account for the symptoms and for death solely by the lesions discovered on the body after death? Such, for instance, is the following case: —

A girl, fourteen years of age, was attacked with discrete small-pox, which went on without any thing particular occurring for the first seven days, dating from the time of the eruption. Then the pustules, full of an opaque white matter, began all at once to become flaccid and depressed. At the same time there was sudden emaciation of the face, the eyes dull; extreme prostration of strength; inextinguishable thirst; appearance of the tongue natural; purging; frequent pulse; skin hot and dry. These symptoms continued during three days; the debility increased, and the patient died.

Post-mortem. State of the Skin. — The pustules presented themselves under three different forms. Most of them were entirely empty; the epidermis, which was raised, was thick, and of a brownish-grey colour. Others were filled with a greyish liquid, resembling the fœtid ichor yielded by ill-conditioned ulcers of long standing. Others, in small numbers, presented themselves in the form of large blisters filled with a reddish serum.

The gastric mucous membrane, throughout its entire extent, was of a dirty greyish-white colour; it was not softened, but towards the great cul-de-sac there were observed from five to six brownish patches of a rounded form, having, on an average, the diameter of a fifteen sous piece; they were formed of blood effused into the submucous cellular tissue. The mucous membrane itself was not altered.

The small intestine, generally white, presented from place to place some spots similar to those of the stomach.

The cæcum was red through its entire extent, the rest of the large intestine was pale.

Two ounces of reddish serum was found in each of the pleuræ. The right lung presented on its surface a broad ecchymosis. Both lungs were in every other part perfectly healthy.

The brain and its membranes presented no appreciable lesion.

Certainly, in this case, none of the alterations found in the organs could account for the very serious phenomena observed during life, no more than for the patient's death. We see here nothing but an upsetting of all the functions, and a sudden prostration coinciding with the collapsed state of the pustules. Was the pus, which filled them, having been absorbed all at once and carried into the circulation, the cause of the phenomena observed? This question will perhaps not be considered unworthy of examination, if it be recollected that animals, into whose veins pus has been injected, present nearly the same series of phenomena, and also after death the same description of lesion, as has been ascertained from the experiments of MM. Magendie, Gaspard, Dupuy, Leuret, Trousseau, &c.

Case 14. — Residence at Paris of a recent date; bad diet; distress — Diarrhœa at the commencement; successive development of ataxo-adynamic symptoms — Bloodletting; blisters; diluent ptisans — Ether and musk the two last days only — Death on the 27th day — Gangrene and ulceration of the follicles — Stomach almost healthy — Pneumonia — Blood as it were sanious — Spleen very soft.

A mason, twenty-one years of age, of a lymphatico-sanguineous temperament, was now residing in Paris for about two months. Since his arrival he experienced considerable distress, and had scanty food. Towards the 10th of June he was attacked with profuse diarrhœa, which during the first days did not prevent him

from eating his food and attending to his work. But the purging soon increased (twenty stools in the twenty-four hours); loss of appetite; debility constantly increasing; inability to work; he kept his bed for eight days before entering the hospital; he took no medicine; observed strict diet, and drank *eau sucrée*. He entered the hospital on the 29th of June. On the 30th we were struck with the air of stupor which he evinced; he complained of intense frontal headach. His intellect was clear, his movements painful. The tongue covered with a whitish coat, was red at the apex, and marked over the remaining part with a number of small bright red points; bad taste in the mouth, thirst; loss of appetite; abdomen free from pain and soft; from fifteen to eighteen watery stools with a yellowish tint had taken place since the day before. Pulse frequent and concentrated, skin hot and dry. A slight cough existed. (Rice water with gum; flaxseed lavement.)

In the course of the day it was observed that the patient raved a little. In the night he disturbed the sleep of those near him by his cries. On the morning of the 1st of July we found him in nearly the same state as on the preceding day. The sputa appeared a little viscid. (Bleeding to two palettes; two blisters to the legs.)

The blood taken from the vein combined into a large coagulum without any buffy coat, remarkably soft, and resembling currant jelly. The delirium returned during the night. On the morning of the 2d his intellect was perfectly good; but he was very much cast down, his eyes were scarcely open, tongue red and its papillæ prominent, the diarrhœa somewhat abated, the skin remained dry, the patient coughed more than on the preceding days, and the viscidity of the sputa continued. (Rice water, flaxseed lavement.) The delirium returned during the night.

On the 3d great despondence evinced in the countenance, livid tint of the face; the patient had considerable difficulty in raising himself a little in order to have percussion and auscultation practised. The viscidity of the sputa was sufficient to make us apprehend the development of pneumonia, though the respiration did not appear at all embarrassed. We heard a little crepitus on the posterior and inferior part of the left side of the chest. Five or six livid spots of a rounded form were scattered over the chest. The patient answered the questions put to him perfectly well. An hour after he quitted the bed on a sudden, and talked very incoherently. Two more blisters were applied to the thighs. The remainder of the day he raved.

On the 4th the air of stupor was carried to an extreme degree. The patient appeared quite unconscious of every thing which passed around him. Still he understood questions, and answered them; but when left to himself he raved again. The tongue was dry, similar in colour to that of burned cream; the lips and teeth were covered with thick black crusts; his stools passed under him in bed; the heat of the skin was very acrid; the pulse, which was very frequent, was easily compressed; the spots had disappeared; the patient did not now expectorate. (Barley water acidulated with muriatic acid; fomentations with warm oxycrat to the abdomen and thighs.)

On the 5th the eyelids remained half depressed over the globe of the eye; when they were raised the latter was observed to be dull, and devoid of expression; a sort of powder, of a dirty grey colour, covered the cheeks; frequent subsultus tendinum was observed in the two forearms, and from time to time slight convulsive movements of the depressor muscles of the left commissure of the lips were noticed. The skin of the trunk and extremities retained its dryness and acrid heat; the skin of the face, on the contrary, was cold and covered with a clammy sweat. The pulse became still weaker. (The same ptisans and fomentations were continued; ethereal mixture with twelve grains of musk; camphorated lavement.) The patient remained in nearly the same state during the day.

Sometimes he appeared in a state of profound coma, sometimes he opened his eyes and sighed very deeply; he passed his stools several times under him; he complained continually during the night.

At the visit of the 6th, his state was nearly the same as on the day before. He appeared to hear the questions addressed to him; he put out his tongue easily enough, but he said not a word. The subsultus was now become more frequent. The pulse was more than 120; the tongue was dry as a bit of parchment. A lumbricus was passed. The inspiration was high and hurried. (The same prescription.)

On the 7th, the patient was dying. We were particularly struck with the great frequency of the inspirations. He died some hours after the visit.

Post-mortem, eighteen hours after death.

Cranium.—The veins under the arachnoid of the convexity of the hemispheres were gorged with blood. The former appeared considerably injected. The cerebral substance was dotted with a great quantity of small red points. The ventricles were entirely empty of serum; a little was found between the cerebellum and its tentorium.

Thorax.—The lower lobe of the left lung presented a brownish colour, and did not crepitate. It bore considerable resemblance to the tissue of certain very soft spleens. Everywhere else the lungs were perfectly healthy, not engorged. The heart contained in its right side some fibrinous clots of but little consistence, and adhering somewhat firmly to the carneæ columnæ of the auricular appendix.

Abdomen.—The stomach was distended with gases. Its inner surface presented several rose-coloured patches, in the interval between which it was white. The mucous membrane, examined in the site of these patches and between them, had everywhere retained its natural thickness and consistence; this state of the stomach might be considered at most as the first stage of slight inflammation.

The duodenum, jejunum, and ileum, contained a great quantity of yellow bile. These intestines, when opened through their entire extent, and washed, presented their inner surface very pale to within about two feet and half above the cæcum. In this latter part there existed a remarkable lesion, which appeared to be of the same kind, and merely presented different degrees. Thus we observed in several places oblong elevations of a brownish red colour, formed at the same time both by the mucous membrane, a little thickened in this part, and more especially by the subjacent engorged laminated tissue (1st stage). In other places these same elevations were surmounted by a yellowish tissue, intimately adherent to the subjacent tissue, and altogether resembling the eschars of external parts. It appeared to us beyond doubt that this tissue was nothing else than the mucous membrane affected with gangrene, whether alone or together with the cellular tissue lying beneath it (2d stage). In other parts, the elevations no longer presented the preceding yellowish tissue, except in isolated points, and in the intervals of this tissue there was seen a tissue of a deep brownish red colour. In this latter case the gangrened portion was already partly detached; thence resulted an ulcer, the bottom of which was formed by the laminated tissue, thickened and inflamed (3d stage). In other places there was observed only mere ulcerations, without any mixture of yellowish tissue, with red edges formed by the mucous membrane, with a brownish bottom formed by the laminated tissue (4th stage).

All these ulcerations formed a considerable prominence above the mucous membrane. This was white, or slightly injected in the intervals.

The mucous membrane of the cæcum and of the commencement of the colon presented considerable injection. We also observed, on all the large intestine, several black isolated points, surrounded with a circle of a dull white colour, forming a slight prominence above the rest of the mucous membrane. (Follicles.)

The spleen, of a large size, was extremely soft, and contained a matter having the colour of wine lees.

The other viscera were healthy.

Examination of the blood.— The thoracic descending aorta contained a considerable quantity of blood, the appearance of which seemed very remarkable. It presented itself under the form of a liquid, having the colour of wine lees, as if sanious in some parts, and holding suspended some small blackish globules. With the exception of this circumstance, it presented a great resemblance to the blood which escapes from an abscess opened before maturity. The rest of the arterial system was empty. The blood from the vena cava presented the same appearance.

The circumstances which preceded the development of this disease should not be lost sight of: the patient's recent arrival in Paris, his distress, and bad diet. In the midst of these circumstances a profuse diarrhœa came on: it fatigued and exhausted the patient, who was placed, by causes which previously acted on him, in peculiar conditions of innervation and hematosis, and, from the very first day we saw him, we were struck with the air of stupor on him, the prelude to much more serious symptoms. In this state of things venesection was employed, and the appearance of the blood drawn from the arm was so unusual, that it already announced that the function of hematosis was changed, whether primarily or consecutively, as well as the function of innervation. This bleeding did not at all arrest the progress of the disease; it did not even impede the development of the pneumonia; and the day after it was employed the general debility became much greater. Revulsives were no longer efficacious; and though simple diluent drinks were given, the tongue became more and more dry, in proportion as the other symptoms became worse. The *post-mortem* showed us the same lesions as those observed in the preceding cases.

It is always the digestive tube which we find more especially the seat of lesion, and that lesion is always of the same nature. On the contrary, we discover nothing but considerable congestion in those nervous centres which, during life, had presented such serious functional disturbances, and which the disease principally seemed to reside.

Let us now direct our attention to some particular circumstances of this disease. We may first remark the delirium: it was first intermittent; then it was separated by lucid intervals of greater or less length; and, finally, it became continued. Up to the last day of his life the patient, though in a state of delirium, understood the questions put to him; and, even when he was no longer able to speak, his actions showed that he still comprehended them. Let us remark also how, in a short space of time, the manifestation of the muscular strength may vary from some modification of the nervous system. On the 3d of July, the patient, with all his efforts, was unable to raise himself in the bed; an hour after he commenced to rave; he then sat up of himself, and walked several steps in the room.

The skin remained constantly dry. Two days only before death his face was covered with a cold clammy sweat. The trunk and extremities contrasted by the burning heat with the icy coldness of the cheeks. This unequal distribution of heat disappeared the next day.

In this case, as in several of the preceding, the state of the tongue did not indicate the state of the stomach. The lesion which the latter presented consisted merely in a very slight injection, similar to that found on most dead bodies, and yet the tongue was to the end remarkably dry; the lips and teeth presented thick dark crusts. These phenomena appeared also at a period when the patient had as yet taken but simple diluent drinks.

No abdominal pain; no tympanitis announced the serious alteration of the intestine.

The diarrhœa which came on from the commencement of the disease, and which then progressively diminished, was thus caused, at first, by an acute inflammation of the follicles of the large intestine, an inflammation which no longer existed at the time of death, but the former existence of which seemed to be proved by the unusual development of the cæcum and colon. It has often occurred to us to find nothing else but these follicles thus developed in cases of diarrhœa of a more or less ancient standing.

The alteration of the lung had no doubt its share in the production of the different nervous symptoms: viscid sputa, not, however, streaked with blood, were the only symptom which caused us at first to suspect the existence of a pneumonia. The respiration was impeded only towards the termination; then the dyspnœa became such as to engage our attention very much; but we should not forget that very often, towards the close of typhoid fevers, the breathing may be considerably accelerated, and the lungs still remain healthy. We have seen the kind of alteration which the lung presented; it was remarkable for its extreme friability, and for the great quantity of liquid with which it was engorged. The air no longer penetrated the diseased part, and yet there was neither red nor grey hepatisation. It was a peculiar alteration, which it is not uncommon to meet in cases of dothinenterite, with dark incrustations of the mouth, petechiæ, pultaceous softening of the spleen, &c.

What shall we say of these spots, larger than ordinary petechiæ, with which the chest was covered on the 5th of July? They lasted but twenty-four hours, and did not coincide with any appreciable change in the other phenomena of the disease. These spots, designated by authors under the name of *vibices*, are, says Huxham, a certain sign of the presence of malignity. They are often accompanied with profuse hemorrhages, and, according to the system of the old humourists, they were connected with a *morbid state of the blood.*

In the case now before us there was, in fact, a very appreciable alteration of the blood. It was evident in the blood drawn during life; it was still more so in the dead body. Now, is it in this blood, thus altered, that we must seek for the outset and cause of the different functional or organic disturbances presented by the patient? Let us first remark, that, in most of the individuals who form the subject of the preceding cases, we observed almost the same disorders, whether during life or after death, and that, in several of them, the blood did not seem to us to deviate from its normal state. One might just as well maintain that the alteration of the blood was here consecutive; that it was, for instance, the result of the absorption of the gangrenous parts of the intestine, but that would be mere hypothesis; and, besides, it would not account for the alteration presented by the blood drawn from the vein at a period when it could not yet be admitted that the absorption of which we have just spoken was the cause of it. However, whatever may have been the part which the alteration of the blood performed here, this alteration was at all events real, and must have exercised some influence on the symptoms, progress, and termination of the disease; for it can scarcely be conceived that the different tissues could be nourished and excited by blood thus altered, without themselves experiencing some disturbance.

Case 15. — Recent arrival in Paris — At the commencement quotidian remittent fever, with evident signs of gastro-intestinal irritation — subsequently adynamic symptoms, preceded by profuse epistaxis — Bleeding, blisters; diluent drinks — Death on the twentieth day — Follicles of the ileum, cæcum, and colon, tumefied and ulcerated — Purulent infiltration of the lower lobe of the left lung — Gangrene of the upper lobe of the same lung.

A water-carrier, twenty-five years of age, who had come to Paris from Savoy within the last three months, of a sanguineous temperament and strong make, was seized, on the evening of the 17th of January, with shiverings, which con-

tinued during the night; on the day after a feeling of general illness, appetite diminished; returns of the shivering at night; frequent alvine evacuations, attended with colicky pains; he was not submitted to any treatment up to the 24th; he then entered the hospital.

On the 25th (ninth day) countenance flushed, eyes very bright, thirst, loss of appetite; tongue red at the edges and apex, covered with a yellowish coat at the centre; bitter taste in the mouth; abdomen free from pain, and a little swollen; from seven to eight stools in the twenty-four hours; slight cough; pulse full and frequent, skin hot and dry. (Venesection to four palettes; barley-ptisan sweetened; diet.)

On the 26th the blood presented a large clot, covered with a dense and thick buffy coat; fourteen stools; same state in other respects. (Venesection to two palettes.)

On the evening of the 26th a very violent exacerbation of the fever. (Third venesection to the extent of one palette, after which the patient fainted.)

On the 27th slight epistaxis; in the evening violent fever. (Bleeding to two palettes.) The blood presented a small clot, covered with a thin, soft, buffy coat.

On the 28th epistaxis; face still flushed, eyes very bright, but still a sinking of the features; answers questions very slowly; same state of the tongue; burning thirst; abdomen a little tympanitic; from thirteen to fourteen stools, with colic; pulse frequent, skin moist. (Emollient ptisans.)

On the 29th profuse epistaxis; great sinking; continual complaints; cough without expectoration; breathing a little hurried; slight dulness and crepitous râle posteriorly on the left, over nearly the entire extent of the lower lobe. (Twenty-four leeches to the left side of the chest; two blisters to the legs.)

30th and 31st, epistaxis, prostration; face pale; same state of the breathing; same result from percussion and auscultation; expectoration catarrhal; diarrhœa also profuse. (Blister to the chest.)

The 1st February, intellects disturbed; epistaxis.

2d, profuse epistaxis since three in the morning; extreme debility; countenance pale and despondent; tongue white and moist; breathing freer; continuance of the cough, meteorism and diarrhœa; pulse very frequent and weak. (Nasal cavities plugged; rice water with gum.)

On the 3d, great uneasiness during the night; eyes flushed; talkative; constant moving of the lower jaw; pulse weak, and very frequent; tongue moist and white. (Sinapisms.)

On the 4th, tongue white, but dry, with some black patches; teeth black; pulse 100, and very weak.

On the 5th, extreme prostration; continual groaning; intellects perfect; involuntary discharge of fæces; breathing high and loud; the bladder, which is distended, ascends to the umbilicus; overflowing of the urine; pulse very weak, 140. (Decoction of polygala with gum; blister to the sternum; sinapisms to the thighs.)

He died at eleven o'clock in the morning.

Post-mortem. Brain healthy.

Thorax. — Close adhesion of the pleuræ costalis and pulmonalis of the left side; lower lobe of the left lung dense, brownish, and, on making an incision into it, a mixture of blood and pus escaped. In the centre of the upper lobe, which was healthy, we found a cavity capable of containing a large egg. Its surface was areolated, brownish, and contained a sort of pap of a greenish-grey colour, and a gangrenous fetid odour.

Abdomen. — Gastric mucous membrane very white through its entire extent, being also of its ordinary thickness and consistence; remarkable paleness of the mucous membrane of the small intestine in its upper four-fifths. In the lower fifth there were found numerous elevations, the diameter of which varied from three to six lines. They were of a pale rose colour. Some were ulcerated in

the centre; over the extent of some fingers' breadth above the valve we found several ulcerations, being about the diameter of a forty sous piece. The mucous membrane forming their edges was red and puffy.

The internal surface of the cæcum and colon was studded with elevations similar to those of the small intestine, but more confluent, and ulcerated for the most part at their centre. The mucous membrane was red to its entire extent, whilst it was white in the small intestine.

The lymphatic ganglions, corresponding to the portions of the diseased intestine were swollen, and their tissue red.

The bladder, distended by urine, extended as far as the umbilicus. Its internal membrane was slightly injected.

Let us try to point out the most striking phenomena of this disease. It attacked a man of a vigorous constitution, who had recently come to Paris. It commenced with shivering, which returned every evening for three consecutive days; purging set in on the third day; the patient remained at rest, without taking any medicine, up to the ninth day. Then the tongue became red, the purging considerable, the abdomen free from pain, pulse feverish; the strength was still retained. On the three following days, 25th, 26th, and 27th January, three bleedings were employed; the blood was buffed in all; still no amendment, 27th, 28th, and 29th, epistaxis each day; countenance begins to be expressive of dejection; on the 29th symptoms of pneumonia; leeches to the chest, blisters to the legs. From the 30th January to 5th February, epistaxis so profuse as to render plugging necessary; from this moment the prostration of strength went on increasing; there was *dryness*, and at the same time *paleness*, of the tongue; purging still continued; meteorism, delirium at intervals; dyspnœa, paralysis of the bladder, debility and extreme frequency of the pulse: death.

To explain these different symptoms we discover nothing in the nervous centres; but we find in the intestine the ordinary disease of the follicles at the double period of exantheme and ulceration. The stomach was free from all lesion, though the tongue had been dry and black. Farther, we find two different alterations in the left lung; inferiorly a pneumonia, which terminated by suppuration; superiorly a cavity, which, existing in the middle of the pulmonary parenchyma, presented all the characters of gangrene of the lung, such as they are described by Laennec, when a cavity results from softening, and from the putrid abscess of the portion of the lung which had become gangrened. This cavity also did not communicate with any bronchus, so that the sputa did not present any peculiar character. But what became of the gangrenous matter? Had it been taken up by absorption, and carried into the torrent of the circulation? At what period did this gangrene form? What relation between it and the other symptoms? Knowing the impossibility of solving these queries with anything like accuracy, we shall merely remark here, that real gangrene of the lung is but very rarely seen in the diseases called typhoid fevers; and consequently, that whatever is found written in ancient authors on the frequency of gangrene of the lungs in such cases cannot be justified by observation.

In this case, moreover, as in all those which have been previously cited, the pneumonia would have been overlooked, if the chest had not been percussed and auscultated. We cannot, therefore, impress it too strongly on physicians to practise percussion and auscultation as often as possible in the case of patients attacked with typhoid fever. In the majority of cases it is only by having recourse to this double method of investigation that they will be apprised of the existence of those intercurrent pneumonias, so insidious in their invasion, so obscure in their progress and in their symptoms, and so destructive in their results.

It appears to us remarkable, that it was after bleeding employed for three successive days, which was unable to arrest the disease, that those profuse attacks of

epistaxis came on, the appearance of which preceded that of the adynamic symptoms. We dwell so much the more readily on this succession of phenomena, as it is not the only time we have observed it. In the winter of 1829, in particular, we saw in five medical students, labouring under slight continued fever, large bleedings, employed in rapid succession, followed by repeated attacks of epistaxis, which were themselves, as it were, the prelude to a most serious ataxic or adynamic state. In two of them, a little time after these attacks of epistaxis came on, we saw several of the leech-bites ulcerate. Each ulceration was rounded, and seemed to have been made, as it were, by a shoemaker's nipping tool. These two individuals died. We think, that the more blood we should have taken from these patients, the more we should have increased the tendency of all the irritated parts to ulceration.

Case 16. — Residence for some years in Paris — Previous watching and fatigue — At first mere lassitude, then slight continued fever, becoming more severe according as the symptoms of pulmonary and gastro-intestinal irritation became well marked — Sudden return of prostration, and death on the thirty-first day in the midst of an apparent state of half-convalescence — Ulcerations in the place normally occupied by the follicles of the ileum — Black colour and softening in the patches of the intestinal mucous membrane — Pneumonia.

A gilder, seventeen years of age, of a delicate constitution and lymphatic temperament, who had been residing in Paris for some years, devoted himself, for several consecutive days, to excessive labour, which was prolonged for a considerable part of the night. On the 26th of December he had some shivering fits in the evening; his sleep was uneasy and disturbed. On the day after, and the three following days, he employed himself at his ordinary work; but, from time to time, unusual fatigue obliged him to rest. He was then seized with a shivering, followed by heat. On the 3d of January he kept his bed. At this period there existed an annoying feeling of heat, thirst, complete loss of appetite, feeling of debility, shivering in the evening, want of sleep, constipation. This state continued for six days. Finding himself worse on the 10th of January, he had a physician brought to him, who prescribed twenty leeches to the anus, and an emollient lavement. These means relieved him a little. On the 12th he entered the hospital.

State on the 13th; feeling of weakness, no headach, face pale; tongue moist, white in the centre, red at the edges and apex; thirst, anorexia, abdomen soft and free from pain, constipation; pulse of moderate frequency; skin hot and dry. In such a state of things, no precise indication presented itself. (Barley ptisan, lavement of marshmallow.)

On the 14th and 15th the patient found himself better. He was less dejected, the skin was becoming moist, pulse was soft; one alvine evacuation had taken place in twenty four hours. (The same prescription.)

On the 16th the face was flushed; fever more intense. The patient coughed without expectorating; his breathing was a little hurried. The chest, when percussed, yielded a somewhat dull sound on the inferior and posterior part of the left side; there also the crepitous râle was heard. These evident symptoms of pneumonia were combated by the application of fifteen leeches to the left side. (Demulcent drinks.)

On the 17th, the sound was duller on the left; the crepitious râle was less marked, and without any mixture of the natural respiratory murmur. The sputa were transparent, viscid, a little rusty-coloured; the inspirations were short and frequent. The pneumonia appeared to progress towards hepatisation. On the other hand, the state of dejection was increased, the countenance was pale, and expressive of great prostration; the pulse was more frequent and weaker; skin dry, and free from heat; the abdomen tympanitic, always free from pain; tongue continued moist; one alvine evacuation only took place after the administration

of an emollient lavement. This general debility, this absence of reaction, seemed to contraindicate the employment of bloodletting. A large blister was applied over the left side of the chest. The action of the skin was solicited by ten grains of Dover's powder. (Camomile lavement.)

On the 18th, worse in every respect. The total absence of respiration on the left side, and at the same time the disappearance of the crepitous râle announced hepatisation of the lower lobe of the lung; the expectoration was suppressed; the difficulty of breathing had increased; a moderate purging had succeeded the constipation of the preceding days (five serous stools). The leaden tint of the face announced the progress of the prostration. (Sinapisms to the feet.)

Nothing new on the 19th; application of a blister to one thigh.

On the 20th, the breathing was more free, the expectoration was re-established; but the tongue was found dry for the first time; there was considerable meteorism; the diarrhœa continued. Thus the improvement which occurred, with respect to the chest, appeared to be at the expense of the abdominal viscera.

On the 21st and 22d, delirium from time to time; same state in other respects. (Emollient ptisans.)

On the 23d, there was a perceptible amendment; nothing seemed to indicate it on the preceding day; no critical phenomenon accounted for it; the skin in particular retained its dryness. Intellect clear; tongue moist; meteorism diminished, as also the purging. On the part of the chest the improvement was not less marked; the breathing was free, cough infrequent, expectoration catarrhal. Still the dull sound and the absence of the respiration continued. Thus the pneumonia was far from being resolved: but it passed into the chronic state. The pulse remained frequent and weak. To support the strength without producing irritation of any organ, such appeared to be the indication to fulfil. Aromatic frictions were made on the extremities several times in the day. The blister to the thigh was dry; that of the chest was still kept up. Internally barley-ptisan with gum, rice-water, &c., were given. From the 24th to the 28th, the state of the patient became more and more improved. On the 27th there was no longer any symptom with respect to the digestive passages, except a very slight diarrhœa. (Two liquid stools in twenty-four hours.) The strength was increased: the countenance assumed an excellent appearance: the dulness of sound and absence of respiration were the only signs, which indicated that the pneumonia was not resolved; on it alone seemed to depend the continuance of a slight frequency of the pulse, without heat of skin; but every thing seemed to promise that time aided by proper care would gradually effect the resolution of this latent inflammation.

What was our astonishment when, on the morning of the 28th, we found the patient in a worse state than he had ever been. Face cadaverous; continual groaning; half-coma; no answers to questions; pulse very frequent and thready. Numerous alvine evacuations had taken place during the night. We were unable to attribute this relapse to any cause, which was as sudden and as unexpected as the improvement of the 23d had been.

The patient died a few hours after the visit, on the 31st day from the commencement of the continued fever, and on the 12th day of the pneumonia.

Post-mortem, thirty-two hours after death. Total absence of fat under the skin and around the organs where it is ordinarily accumulated.

Cranium.—Brain perceptibly more consistent than usual; ventricles containing about a large spoonful of limpid serum.

Thorax.—The lower lobe of the left lung, to about three-fourths of its extent, the base of the right lung to about three fingers' breadth in depth, presented, on being cut into, a uniform red tissue, whence a sanious liquid flowed. This tissue, which was easily torn, did not crepitate, nor did it float on water. The lungs, for the remainder of their extent, were very healthy.

Abdomen. — The stomach was distended with gases. Its inner surface was white, except in some isolated points where there existed some redness in the form of lines or small patches. These different parts, when put together, equalled about the diameter of a forty sous piece. Their colour resided in the mucous membrane, which there was a little softened.

The upper three-fourths of the small intestine, filled with a yellow and viscid liquid, were remarkably white. At the commencement of the lower fourth, we observed some black patches seated in the mucous membrane, which was thickened and softened. In the centre of some we perceived a slight solution of continuity of the mucous membrane. In others, this solution of continuity was more deep-seated, and more extensive; its bottom was formed of laminated tissue, which had retained its whiteness. According as we approached the termination of this small intestine, these patches and these ulcerations became more confluent. Immediately above the ileo-cæcal valve, and in the cæcum, there was observed another kind of ulcerations ; their edges were red and puffed ; the muscular tunic constituted their bottom. In the interval between these different lesions the mucous membrane was white. The three portions of the colon, whose inner surface was white, were distended with gases. The sigmoid flexure was contracted. The mucous membrane presented red folds. The mesenteric ganglions, which corresponded to the lower third of the small intestine, were red and swollen.

The subject of this case differs from several of the preceding in this, that he was for a long time residing in Paris, when his health began to fail. The commencement of the disease is worthy of remark; when we reflect on the nature of the symptoms which this individual experienced at first, does it not seem that we should refer them principally to an exhaustion of the innervation, produced by watching, and by the painful employments in which he was engaged ? These are the very symptoms which we perceive supervene in other individuals, whether after strong mental emotions, or after great intellectual fatigue, or after venereal excesses, etc. Shall we then say, that, in these cases, there is at first this *general affection?* What can be less appropriate under the present circumstances than such an expression, and what affection is better localised than that which consists in a primary derangement of the nervous centres ?

However, in our patient, as in most of those who, by some one of the causes just now stated, exhaust their store of innervation very excessively, a period soon arrived, when several organs became the seat of irritation ; in this case it was principally the respiratory and digestive apparatuses. A congestion in these organs being once produced, it must be foreseen that it would not be readily resolved, and that there would be a tendency to other terminations ; it must also be apprehended that it would produce nervous symptoms more or less serious ; as is commonly observed in an individual placed under circumstances similar to those to which our patient had been subjected.

No alarming symptom at first accompanied the double congestion, of which the pulmonary and gastro-intestinal mucous membranes were almost simultaneously the seat; however, the irritation of the pulmonary mucous membrane extended to the last bronchial ramifications, reached the pulmonary vesicles, and scarcely had auscultation detected a pneumonia, when the patient was observed to fall into still greater prostration. There is no doubt but this pneumonia contributed very much to produce the adynamic state ; this is what happens in many old persons who are observed to become *adynamic* very rapidly, when attacked with pneumonia. However, the digestive passages had also their share in the production of this adynamic state, as was proved by the meteorism and diarrhœa which set in.

Thus there are three stages in this disease : in the first, the derangement of the health results from prolonged fatigue of innervation, every thing observed

may be explained by this fatigue. and nothing proves that there was any thing else in question.

In the second stage, the respiratory and digestive passages become affected ; but the disease did not as yet present any thing formidable.

In the third stage, the twofold affection of the pulmonary and gastro-intestinal mucous membrane became more serious, and this increase of severity was announced by an adynamic state.

This third stage was soon succeeded by another, in which the disease again changed its aspect. Of the local signs of the intestinal affection there now remained not one, except a very slight diarrhœa ; of the signs of the pneumonia there remained none but those afforded by auscultation and percussion : lastly, of the general symptoms there remained merely a very slight febrile disturbance ; but the strength returned and all the phenomena of adynamia disappeared.

This fourth stage seemed such as should bring the patient to a perfect convalescence ; one might hope for the complete, though slow, resolution of the pulmonary and intestinal inflammation, when all at once the scene changes: without any known cause the diarrhœa suddenly returns very profusely ; at the same time the prostration of strength all at once becomes extreme, and the patient dies, presenting a group of symptoms very much resembling those of cholera.

The *post-mortem* examination showed in the intestine lesions which certainly existed there before the appearance of the latter symptoms. These lesions were still very intense ; they were much more considerable than those presented by other individuals who had died with ataxic or adynamic symptoms. These symptoms had also existed in our patient ; but they had disappeared, though the intestinal lesion was still very intense, as the dyspnœa had disappeared in him, though at the time of death a considerable portion of the pulmonary parenchyma was still hepatised. We may remark the state of the ulcerations of the cæcum, the edges of which were still very red, and which were so deep-seated that their bottom was formed by the muscular tunic divested of the cellular layer which ordinarily covers it.

With respect to the symptoms of the fifth stage, how are we to account for them ? Did they result from a return of the inflammation of the ulcerations of the cæcum, or from a return of a profuse diarrhœa, breaking up of the strength, and death ?

Be that as it may, on seeing this individual recover his strength and progress towards convalescence, who could have supposed that there were still such serious lesions in the intestine ? Who could have supposed that he could still respire only by means of a part of his lung ? From the aggregate of the symptoms, whether local or general, who would not have formed a favourable prognosis with respect to the termination of the disease up to the morning of the 28th of December ?

This patient was not bled. All the treatment was confined to blisters applied to the extremities and chest, to sinapisms, to simple emollient drinks, to which were added, on one occasion, ten grains of Dover's powder, which produced no perspiration. It was on the day in which this powder was administered that the diarrhœa appeared for the first time.

Case 17.—Recent arrival at Paris—Great fatigue and watching.—At the time of entering the hospital symptoms of pneumonia without expectoration ; at a later period ataxo-adynamic symptoms—Blood very serous—Antiphlogistic treatment at first, then tonic—Death on the 34th day—Intestinal follicles tumefied and ulcerated ; eschars at the bottom of some ulcerations—Remarkable paleness of the ulcerations and elevations ; no redness of the remainder of the intestines—Pneumonia—Spleen large and soft.

A woman, twenty-three years of age, who had arrived at Paris within the last eight months, and lived as a servant, was seized without any known cause, towards the 15th of February, with illness and lassitude ; her appetite was diminished ;

her menses were suppressed; however, she continued to work up to the 2d of March. At this time some cough and a pain in the right side appeared. She was bled in the arm, and the day after the bleeding sixteen leeches were applied to the side affected. The state of the patient was not improved. She entered the Charité on the 9th of March, and the next day presented the following state: —

Lies on her back; countenance pale, with some appearance of dejection; tongue white; anorexia; abdomen slightly tumefied, soft, painful on pressure in the right flank; two or three stools; cough without expectoration; wandering pains in the chest; on percussing we discovered a dull sound laterally, on the right and left below the mamma; respiration not heard on the right; some râle on the left side; pulse frequent and hard; skin hot and dry. (She was bled to the amount of three palettes; two blisters to the legs in the afternoon; mucilaginous drinks.)

The colour of the blood less deep than usual; it gave to the linen cloth a very clear red tint, as if the colouring matter were diluted with a considerable quantity of water. Being almost entirely constituted of serum, it presented but a very thin coagulum, about the size of a five franc piece, and without a buffy coat.

On the 11th, delirium during the night; pulse weaker; respiration not frequent; the other symptoms underwent no change. It appeared to us that the dull sound detected on the right side depended on the liver. (Twelve leeches to the left side; two sinapisms.)

On the 12th, prostration more marked; air of stupor; tongue white, but smooth and evincing a tendency to become dry; great thirst; abdomen free from pain, and tympanitic; diarrhœa more profuse than on the preceding days; cough with slight catarrhal expectoration; respiration hurried; pulse frequent and weak; skin constantly hot and dry. (Mucilaginous mixture, with two grains of Kermes, Dover's powder; embrocations to the abdomen with oil of camomile; fomentations with infusion of camomile; six leeches behind each ear; two blisters to the thighs.)

On the 13th, vomiting after taking a dose of Dover's powder; mild delirium during the night; tongue dry and white; increase of the meteorism: constant and involuntary movement of the thumb of the left hand. Same state in other respects. (Fomentations and embrocations as on the preceding days; lavement of camomile with five drops of essential oil of aniseed and twelve grains of camphor; twelve leeches over the left side of the chest, four over each jugular vein.)

On the 14th, prostration still greater; tongue white, and at the same time dry and encrusted; continuance of the meteorism and diarrhœa; cough less; deep sighs from time to time; pulse very frequent, weak and tremulous. (Watery infusion of quinquina, acidulated with sulphuric acid, sweetened with syrup, mineral lemonade, some wine.)

On the 15th, night calm without delirium; respiration higher and loud; pulse more resisting; commencing eschar in the sacrum about the breadth of the palm of the hand. (Large blister over the left side of the chest, which still remains dull.)

On the 16th, same state. (Frictions with camphorated alcohol.)

On the 17th and 18th, the tongue, lips, and teeth, were black and encrusted; abdomen very tympanitic; diarrhœa moderated; pulse very frequent and very weak. There was added to the prescription of the preceding days a potion made of six ounces of quinquina and one ounce of syrup of quinquina.

On the 19th, the patient no longer recognises the persons around her; mild delirium; countenance very pale; tongue covered with black crusts; pale beneath them and in the intervals between them; tympanitic state increasing;

four or five involuntary stools within the last twenty-four hours. (Same prescription.)

On the 20th, eyes dull, almost extinct; sweat on the face; respiration loud; pulse scarcely perceptible. She died at eleven o'clock in the morning.

Post-mortem, twenty-two hours after death. No emaciation.

Cranium. — The membranes and substance of brain not injected; brain has its ordinary consistence; a little limpid serum at the base of the cranium and in the spinal canal.

Thorax. — Its vertical diameter very much diminished on the right by the liver, which ascends as high as the fourth rib. The lung of this side presents but slight engorgement posteriorly. The lower lobe of the left lung, on the contrary, is compact, hard, impervious to air, in the state of red hepatisation. In the interlobular fissure of the lung of this side we found a recent false membrane of about a line in thickness. The heart, colourless and flaccid, was proportioned to the size of the subject. Its right cavities contained a coagulum divested of colouring matter.

Abdomen. — The stomach was moderately distended with gases and liquids. Its inner surface presented two distinct colours; the splenic portion of a rose colour. This colour resided in the mucous membrane which was a little puffed; the rest of the stomach was white.

The inner surface of the small and large intestine remarkably white. In the lower fourth of the small intestine some rounded ulcerations were found, of about the diameter of a lentil, whose white edges, when cut perpendicularly, were formed of mucous membrane slightly swollen, and the bottom of which, also very white, exposed the fibres of the muscular layer. To the extent of half a foot above the valve, these ulcerations became confluent, broader and more irregular. The bottom and edges presented the same arrangement. The bottom of some was covered by a soft layer, of a yellowish grey colour, firmly adhering (eschar of the mucous membrane). Between these ulcerations were observed two or three elevations, of the size of a lentil, and white as the rest of the mucous membrane, at the expense of which they were formed. The mesenteric ganglions corresponding to the ulcerations were red and tumefied; the spleen was soft and large.

Residence in Paris for a little time; prolonged fatigue and watching; state of languor and general illness preceding the invasion of the disease, by forming as it were the prodrome, and being referrible, as in the preceding case, to an exhaustion of the innervation; presently after symptoms of pulmonary inflammation, which seemed to yield to two bleedings, one local, and the other general; at the time of the patient's admission to the hospital, and on the following days, a remarkable air of stupor, insensibility physical and moral; delirium at intervals; rapid increase of prostration; dryness and at the same time paleness of the tongue; involuntary stools; frequency and extreme smallness of the pulse; permanent delirium and carphology towards the termination; such were the principal phenomena observed in this patient. At the commencement, the antiphlogistic treatment was employed; subsequently, a treatment extremely tonic and stimulant. At the *post-mortem*, the same lesions as in all the preceding cases; only there was here a remarkable circumstance; namely, the total absence of redness or any other unusual colour, either in the ulcerations, or around them.

Shall we connect with this remarkable absence of colour of the intestinal mucous membrane, the no less remarkable paleness which the tongue presented during life? It was not red when it became dry, and at a later period when it was covered with thick black crusts, it still presented great paleness in the intervals between these crusts.

The nature of the blood drawn from the vein is worthy of remark. We have

seen that it was almost entirely formed of very clear serum. What an immense difference between this serous blood, almost without fibrin and colouring matter, and that which forms in the vessel in which a large dense clot is received which is often covered by a buffy coat of greater or less thickness. Yet there was here extensive inflammation of the lung. Thus blood of a peculiar nature, very poor in nutritive and stimulating materials, circulated in the veins of this woman. Did not this blood thus modified perform its part in the production of several symptoms? Could it not explain to us the state of the individual's strength? Could it not assist us in foreseeing the nature, form, and danger of the phenomena which were developed in consequence of the double affection of the intestine and the lungs? Must it not, in a word, have influenced in some measure the mode of treatment? On seeing the blood so different from itself, whether in different diseases, or in one and the same disease, attacking individuals placed, by their temperament, their age, and their mode of living, in dissimilar circumstances, how can we refuse to admit that the explanation of the fundamental or accidental symptoms of every disease should be looked for in the blood as well as in the solids? If the ancients often saw, in the diseases which they called malignant or putrid fevers, a blood similar to that which came from the vein of the woman who forms the subject of this case, they were right in saying, that in these diseases there is a state of dissolution of the blood.* But they were wrong if they made this assertion generally; if they contended that this solution of the blood is a necessary element and one that is indispensable in the production of these fevers; for in many of our cases the blood was far from presenting such a character. Thus, in scurvy, the blood has been frequently seen completely destitute of the property of coagulating; and very often also it has been found, in this disease, as well coagulated as in any other affection.

The pneumonia was announced here by symptoms less marked than in the preceding case. The expectoration was constantly that of mere catarrh, the breathing appeared really embarrassed only during the last forty-eight hours; the acute pain which the patient felt at first in the right side of the chest, the dulness of the chest over a great portion of this side, owing to the great enlargement of the liver, might have led one into error with respect to the seat of the pulmonary inflammation.

As in most of the other cases, the brain presented no appreciable lesion, though the patient had considerable delirium. The functions of organs then may be injured without these organs themselves presenting in their texture any perceptible alteration. It also appears very difficult for us to declare precisely in what state the brain shall be found in individuals, who, during the course of typhoid fevers, have had delirium and other nervous symptoms. Accordingly, in several individuals who presented these symptoms, we found in some, (and that is not the smallest number,) the brain and its envelopes perfectly healthy; in others the cerebral substance appears in general more consistent; in a third, it is injected, and studded with an immense number of red points, which are the orifices of so many small vessels; in a fourth, albuminous concretions exist in the sub-arachnoid cellular tissue of the upper surface of the brain, or of its base; in a fifth, the ventricles are filled with a more or less considerable quantity of limpid serum. On the other hand, how often have we seen the ventricles contain, at least, an equal quantity of serum, in persons who had died without ever presenting the least disturbance in their intellectual, sensorial, and locomotive faculties!

* *In febribus petechialibus, sanguis valde fluidus, serosus ac solutus est.* (Hoffman, *Medic* . . . . . edit. in quarto, part iv. sect. i. chap. 10.)—*In acutus et continuis febribus, sanguis fluidissimus comparet, plane non in coagulum concrescens.* (Ibid. chap. 10.) Grant has also observed a similar state of the blood in persons attacked with petechial fever. (See his work on Fevers.)

Case 18.—Epistaxis at the commencement—Ataxo-adynamic symptoms from the first days of the disease; diarrhœa during its entire course—Leeches; blisters; stimulating antispasmodics (assafœtida, musk, etc.)—Death on the 13th day—Ulcerations of the small intestine—Healthy state of the large intestine—Effusion of blood into the tunics of the stomach, into the muscles of the abdominal parietes, into the pleuræ and pericardium.

A girl, seventeen years old, was attacked on the 14th of July with a profuse epistaxis, which re-appeared on the following days. At the same time there was diarrhœa and general illness. (Leeches were applied to the right iliac region.)

On the 19th, face pale; the patient looks as it were astounded; answers to questions are painful and uncertain; tongue red and dry at its apex; abdomen free from pain and soft; continuance of the purging; pulse weak, not frequent; skin not hot; profuse epistaxis on this night. (Barley-water; linseed lavement.)

On the 20th, deglutition difficult; stupor increased. (Two blisters to the legs.)

On the 21st, the patient lay with slight retroversion of the head; her eyes, which were closed, opened when she was spoken to, but were not fixed on any object; she did not answer, though she seemed to hear and to comprehend. She was continually uncovering herself, complaining, and uttering, occasionally, piercing cries; her countenance then put on the expression of the most acute pain; the chest was frequently raised, and the shoulders were thrown back by a sudden movement. The two jaws firmly closed the one against the other, as at the commencement of tetanus, prevented the tongue from being seen. All the drinks which we tried to introduce into her mouth were thrown up convulsively. Three or four liquid stools; pulse small, scarcely frequent; skin cool. (Two lavements of linseed meal, with twenty grains of assafœtida in each, and ten grains of musk.)

On the 22d, profuse bleeding from the gums; in other respects no perceptible change. (Four demi-lavements of camomile, with a scruple of assafœtida, and ten grains of musk in each; two blisters to the thighs.)

On the 23d, perceptible improvement; countenance more natural; answers questions stammeringly; attempts in vain to show the tongue, which is smooth and dry. (Two more blisters beneath those applied the preceding day; in other respects the same prescription.)

On the 24th, appearance of the face more natural; the patient understood all the questions very well; she sometimes answered them by signs, sometimes by indistinct words. The tongue was dry and brownish; the gums bled; deglutition well performed; the patient complained of a burning heat all along the pharynx and œsophagus; pulse not frequent; skin not hot. (The same lavement; acidulated wash.)

On the 25th, the patient seemed to have only the intellects of a child seven years old, and expressed herself so; the lower jaw was agitated by a tremor similar to that which occurs in the shivering fit of fever; the temperature of the skin was raised, and the pulse had acquired some frequency.

On the 26th, the state of excitement of the preceding days was succeeded by considerable prostration; the lips and tongue were covered with black incrustations; four involuntary liquid stools had taken place; the breathing was hurried, for the first time the pulse retained its frequency. (Barley ptisan with gum; mixture, with eight grains of musk; gargle of mel rosarum and muriatic acid.)

In the course of the day the breathing became more and more embarrassed, and the patient died as it were in a state of asphyxia, at five o'clock in the evening.

Post-mortem. Effusion of a very deep red liquid into the spinal canal.

Copious effusion of red liquid into the pericardium and two pleuræ, which presented no trace of inflammation. Lungs were engorged and crepitated.

Large ecchymosis between the fibres of the muscles of the right side, a little above the pubis.

The stomach distended with gases was generally injected on its inner surface. Along its great curvature, and over its posterior paries, there were several patches of a brownish red colour, owing to a sanguineous infiltration of the submucous cellular tissue. The small intestine was white as far as about two feet above the cæcum ; in this last situation, when touched at first externally, it was hard, studded, and considerably thickened in several points : these latter corresponded to so many ulcerations, the greyish bottom of which was formed of the laminated tissue considerably thickened. At the distance of four or five inches above the valve, there was observed but one ulceration, and that of great size.

If we had found in all the dead bodies of the preceding patients morbid appearances as serious as those presented by the small intestine of this young girl, we might have easily established the relation between the lesions discovered by the autopsy and the symptoms observed during life. The ulcerations were here remarkable both for their extent and for their depth ; there was no trace of the exantheme which had preceded them, and yet the disease had commenced but thirteen days before. Profuse epistaxis marked its onset; from the commencement the intestinal affection disclosed itself by diarrhœa. A few days after the attack there was already a very well marked air of stupor : every day the nervous symptoms became more striking ; the tongue, at first, red, became dry and black ; in the midst of these numerous and serious phenomena, we perceived an entire absence of fever ; the pulse acquired some frequency, and the temperature of the skin became raised only two days before death. Thus, in this case, the intense inflammation with which the digestive tube was attacked, developed itself and proceeded to ulceration, without any disturbance taking place in the circulation : it is somewhat difficult to believe that such a lesion could form without any pain having ever announced it and without the abdomen having ever become tympanitic ; yet such was the case.

We may remark how great the tendency to hemorrhages was in this individual. The nasal mucous membrane, the tissue of the gums, the spinal arachnoid, the two pleuræ, the serous covering of the pericardium, the sub-mucous cellular tissue of the stomach, the intermuscular cellular tissue of the abdominal parietes, were alternately or simultaneously the seat of profuse sanguineous exhalations.

Case 19.— At the commencement slight continued fever — Subsequently ataxo-adynamic symptoms, the appearance of which coincided with epistaxis — Leeches and blisters; quinquina on the last day — Death on the seventeenth day — Ulceration in the ileum and cæcum — Spleen large.

A man, forty-five years of age, presented for about eleven days symptoms of slight continued fever ; he had no purging ; he had been treated with simple diluents. On the eleventh day (31st October) he had profuse epistaxis. On this same day his pulse became more frequent, his tongue became red and dry, the abdomen became tympanitic. (Twenty leeches to the anus.)

On the 12th day, the pulse, which was full enough on the preceding days, was remarkably small ; the skin was free from heat; the tongue was brown. Thus, notwithstanding the bleeding at the anus, the state of the patient became worse. The most pressing indication seemed to be to recruit the strength. A blister was therefore applied to one of the legs. Its employment was so much the more indicated, as no reaction took place on the skin. The drink administered was barley ptisan, sweetened with honey. The patient raved all the night. On the morning of the 13th, his ideas were not yet clear ; numerous petechiæ covered the skin of the neck and abdomen ; the constipation continued. (Barley ptisan ; mineral lemonade ; lavement of camomile.)

On the 14th and 15th days, the state of the patient was worse : he raved

almost continually; the features became sharpened; tongue still brown; abdomen tympanitic and free from pain; pulse scarcely felt; skin cold. (The same drinks were continued; the extremities were rubbed with stimulating liniments.)

On the 16th day the prostration was extreme; the patient was aroused with difficulty from the state of stupor, and pronounced, stammeringly, some unintelligible words; the petechiæ were no longer so numerous. (Two cups of the watery infusion of quinquina, one scruple of camphor in a camomile lavement.)

On the 17th day the patient was dying; the tympanitis was very considerable. He died in the night.

Post-mortem. Lungs very much engorged; crepitated but little; their tissue was easily torn.

The stomach was distended with gases and liquids; its inner surface was very white, except at the great cul-de-sac, where there existed two small red spots, each being, at most, the size of a five sous piece. These spots belonged to the mucous membrane, which appeared every where else perfectly healthy.

The small intestine, including the duodenum, contained a great quantityof yellow bile, which coloured the valves. Its inner surface, when washed, was very white to about a foot above the ileo-cæcal valve. At this part there were found ulcerations, whose edges were raised and brown, and the bottom of which, being white, was formed of laminated tissue, now thickened. In the first eight inches we counted but five or six, each about the size of a twenty sous piece; between them the mucous membrane was white; in the four last inches these ulcerations were more numerous; the mucous membrane, red in the intervals between them, was entirely destroyed on the upper surface of the valve.

The cæcum was studded with a great number of small ulcers, all equal in size and capable of containing a small lentil. The mucous membrane, which formed the edges, and the laminated tissue which formed the bottom of them, retained their natural thickness. Between them the cæcum presented a red colour, which resided in the mucous membrane.

The remainder of the large intestine, which was filled with softened fæces, was very white. The spleen was very large.

The preceding case presents to us a disease which, mild up to its eleventh day, suddenly assumed a serious character, at the same time that profuse nasal hemorrhage showed itself. The application of leeches did not moderate these symptoms, the rapid prostration of strength principally engaged our attention; recourse was had to blistering, but in vain. On the 13th day, some petechiæ appeared, and their existence at a time when the patient had as yet taken but some diluent drinks, belies the assertion of De Haen, who lays it down as a general principle, that the petechiæ which appear in typhoid fevers, are always the result of the unseasonable employment of emetics and purgatives. The delirium became constant. Still no other tonic was employed but mineral lemonade; an attempt was made to excite the action of the skin by stimulating frictions. The adynamic state soon attained the last degree, and the patient dies after having taken quinquina only twenty-four hours before death.

At the *post-mortem*, the brain was found to be intact, though complete delirium had existed; the gastric mucous membrane was healthy, though the tongue had been dry and black, and, as in all the preceding cases, there was serious lesion of the small intestine: nor was there found in the latter any trace of exantheme, but merely ulcerations; there was some also in the cæcum, and yet the patient had never had purging.

We may remark the very great quantity of bile which filled the intestine. This bile particularly engaged the attention of Stall, and this circumstance would have had great weight with him in determining the nature of the disease and its treatment.

Case 20. — Ataxo-adynámic symptoms — Daily exacerbations, resembling the accessions of intermittent fever — Parotitis—Varioloid eruption on the epigastrium — Leeches; blisters; wine; quinquina in drinks and in lavement — Death on the 19th day — Ulcerations towards the extremity of the small intestine — Large intestine healthy — Injection of the gastric mucous membrane — Spleen of the ordinary size.

A carpenter, thirty-six years of age, of a very strong constitution, was brought to the Charité, on the 24th of June, in a state of delirium, which prevented us from learning from him the commencement and cause of the disease. Those who brought him stated that he was ill for the last nine days.

June 25th. Lies on his back, cheeks flushed, eyes half-shut, mouth open, lips black and dry, tongue black, dry, cleft; pain in the epigastrium and in the cæcal region on pressure, constipation; pulse weak and very frequent, skin dry and hot; eruption on the abdomen, principally at the epigastrium, of pimples with a red base, the summit of which was surmounted with a large vesicle still transparent in some, opaque and containing real pus in others. The patient complained very much; he comprehended with difficulty the questions put to him: he seemed to have entirely lost the recollection of what was past. (Fifteen leeches to the anus, a blister to one thigh, decoction of barley, mineral lemonade.)

In the course of the day he became completely delirious. On the morning of the 26th, the tongue was more moist; one stool, same state in other respects. (Four leeches on each side of the neck.)

On the 27th, sweat on the face and upper extremities; no change in other respects. (Barley ptisan; mineral lemonade, decoction of polygala, some wine.)

On the 28th, very painful swelling on the right parotid gland, tongue black, no stool, abdomen soft, appearing insensible to pressure, the pustules of the epigastrium were all white, and varioloid; the pulse was small and frequent; the patient was in a state of mild, continued delirium. (Same prescription.)

On the 29th, we found the face, neck, and upper extremities, covered with sweat, as on the 27th.

On the 30th, the delirium still continued, the prostration increased, the pulse, very frequent, and extremely small, the skin burning hot; the tongue remained dry and brown, the abdomen was soft, constipation was obstinate; the parotid gland became larger. (A lavement of quinquina was added to the prescription of the preceding days.) At four o'clock in the evening, the eye was extinct, half shut; subsultus tendinum very frequent, carphology, continual muttering.

On the morning of the 1st of July, the face had a more natural expression; the eye less dull, opened from time to time; the patient groaned at intervals; he made an effort to answer questions, but could not articulate; he showed his tongue when asked, with sufficient ease; it was dry, black, and marked with fissures: no stool. Parotid gland larger and harder. (Same prescription.) At two o'clock in the afternoon, face cadaverous, passive dilatation of the buccinators at each expiration, constant muttering, pulse very weak, and too frequent to admit of being counted.

July 2d. This state of agony continued. Watery infusion of quinquina, barley, mineral lemonade, two sinapisms.)

We thought that the patient would die in the course of the day; yet what was our astonishment when, on the morning of the 3d, we found a sensible amendment! in particular the appearance of the face was better; the patient understood questions, but did not answer them; he put out his tongue slowly and with difficulty: it was moist, clammy, but black. The teeth were cleaned, the skin was without heat, the pulse weak; state of the parotid gland the

same; a great part of the pustules of the epigastrium dried. (Same prescription.)

At four o'clock in the evening, the face took on again a cadaverous aspect; the patient no longer seemed to hear questions as in the morning; the eyelid was depressed one half over the eye which was nearly extinct: the buccinator muscles were dilated, as on the preceding day.

On the morning of the 3d of July, another amendment took place; the patient heard, and for the first time was able to articulate some words connectedly; the tongue was moist and clean, the abdomen flat and free from pain; had one stool within the last forty-eight hours. The parotid gland was very large, a great quantity of pus flowed through the ear. (Same prescription.)

At four in the afternoon, the amendment of the morning had disappeared; a state similar to that of the preceding day at the same hour had succeeded it.

The patient died on the 4th, at 7 o'clock, in the morning.

Post-mortem, twenty-five hours after death. Considerable emaciation; muscles blackish; parotid projecting very much on the side of the head and neck. A great quantity of sanious and greyish liquid separated the granulations of the gland. Immediately below the pinna auriculæ a small abscess was found; through which a probe was easily passed as far as the external auditory meatus.

Cranium.— Neither the brain nor its membranes presented any thing remarkable, a little serum was found in the ventricles; the veins entering into the superior longitudinal sinus contained some bubbles of air in considerable quantity, probably the result of decomposition.

Chest.— The laminated tissue of the anterior mediastinum was swelled with gases, which gave it a great resemblance to the external surface of the lungs of reptiles; the pericardium contained a perceptible quantity of yellow serum; heart a little flaccid and empty; lungs healthy; that of the right side adhered to the ribs by old cellular bands; the bronchi of this side were red.

Abdomen. — The stomach was a little contracted on itself in its pyloric portion; the small intestines were of their natural size; the large intestine presented contractions in different points of its extent: the inner surface of the stomach was perfectly white over all its splenic portion; but the pyloric portion was very much injected. The inner surface of the duodenum, as well as that of the upper five-sixths of the small intestine, was lined with mucus mixed with yellow bile. All this portion of the intestine was in other respects very healthy, white and transparent; in some points only there existed a slight injection of the sub-mucous capillary network. In the lower six of the small intestine, the mucous membrane presented five or six large ulcerations with irregular edges, the bottom of which, being of a reddish colour, was formed of the exposed muscular tunic. Between them the mucous membrane was but slightly injected; the corresponding mesenteric glands were of a brownish red colour and swollen. The large intestine, filled with consistent and yellowish matters, was perfectly white.

The course of this disease well merits our attention. No change took place, whether favourably or unfavourably, for the first few days; and considering the very serious symptoms that existed, it was somewhat remarkable that the disease remained stationary; but then a sort of exacerbation took place every evening, during which a real paroxysm (*agonie*) was observed. Was it not a sort of malignant remittent fever, and would not the quinquina, given *plenis manibus*, as Pigner used to say, before the return of the exacerbation, have prevented it? It was after the fourth exacerbation that the patient died; but it is deserving of notice that death did not supervene till morning, the period when the immediately mortal symptoms of the afternoon used to cease.

It is particularly on the 3d of July, that a dose of quinquina should have been given with the intent just now stated; for then the tongue presented nearly its natural appearance, and there was very little fever.

The enlargement of the parotid gland must have only aggravated the state of the patient.

Partial sweats appeared unattended by any advantage on the 12th and 14th day.

An eruption similar to that which covered the epigastrium is not a common phenomenon in fever; it seemed to exercise no influence on the progress of the disease.

The delirium could not be accounted for by any lesion of the brain or its membranes.

The stomach itself presented but a slight degree of inflammation; such as is observed in several persons, who have had no ataxic or adynamic symptoms, and probably whose tongue never was either dry or black.

The lesion of the small intestine, always of the same nature as that presented in the other cases, is the only thing remaining to account for all the symptoms.

We may remark, that here also an obstinate constipation coincided with the healthy state of the intestine.

Case 21.--Stupor and deafness from the very commencement—Natural state of the tongue in the midst of adynamic symptoms—Sudden disappearance of the deafness—Paralysis of the bladder; gangrene of the penis and sacrum—Leeches to the anus; blisters; wine; quinquina; camphor—Death on the 22d day—Ulcerations at the extremity of the small intestine and cæcum--Brown colour and softening of the gastric mucous membrane--Brain dotted with red points--Pneumonia—Spleen not much enlarged.

A man, twenty-seven years of age, of delicate constitution, felt, on the 28th of October, general illness, and without any known cause. On the 30th he had deafness and fever, and continued in the same state up to November 2d. He then entered the Charité, and twenty leeches were applied to the anus on the morning of the 3d. On the 4th the fever was as intense as on the preceding day; deafness very great; tongue moist and red; abdomen free from pain; stools natural; countenance has an air of great stupor; movements slow and painful. These last symptoms, as also the deafness, announced the commencement of ataxo-adynamic fever. (Skin was rubbed with volatile liniment; a lavement of camomile, with camphor, was prescribed.) The state of the patient remained nearly the same from the 3d to the 6th. (Two blisters were applied to the legs.)

On the 9th (the eleventh day of the disease), the deafness disappeared all at once; but in the course of the day the bladder was struck with paralysis; a large tumour, formed by this viscus, filled with urine, arose above the pubis; the patient was sounded.

On the 10th of November the paralysis still continued; the debility was increased. The patient was plunged into a state of stupor, from which it was difficult to rouse him; the tongue retained its moisture, and the pulse its frequency. (Lemonade with wine, lavement with camphorated camomile, friction with volatile liniment and cantharides.)

On the 11th, the prepuce, irritated probably by the introduction of the sound, was attacked with gangrene; the skin of the sacrum presented a brownish red colour; the prostration of the strength was increased; the patient answered questions stammeringly; tongue dry and brown; pulse very weak. (Two glasses of aqueous infusion of quinquina were added to the prescription of the preceding day.)

On the 12th diarrhœa came on.

On the 13th symptoms of pneumonia manifested themselves; respiration frequent, short, and painful; patient coughed very much without expectorating;

by percussion we detected a dull sound on the inferior and lateral part of the left side of the chest; the eschar of the penis had extended; the skin of the sacrum was black; the strength became more and more prostrated; the purging continued. (Same prescription, and also a blister to the left side.)

From the 14th to the 18th of November, the day on which he died, and which was the twenty-second day of his illness, this person was in a state of continual delirium; the dyspnœa increased; tongue alternately dry and moist, brown and a bright red: the purging continued; the paralysis of the bladder ceased; the eschar of the penis did not extend; the eschar of the sacrum, having been detached, left in its place a large ulcer with a greyish bottom. The patient died in a state of extreme dyspnœa. (The same treatment was continued to the end.)

Post-mortem, forty-eight hours after death. The brain, which was of the natural consistence, was dotted with a great number of red points. Two teaspoonsful of limpid serum were found in each of the lateral ventricles. The membranes were a little injected.

The heart was pale and empty. The lower lobe of the left lung, of a brownish red colour, was no longer pervious to air. Its tissue, being very soft, was torn like that of the spleen. The upper lobe of this lung, and the entire of the right lung, were engorged with an enormous quantity of bloody serum.

The stomach was distended with gases. The mucous membrane, in the great cul-de-sac, presented a brownish colour, and was very soft. The mucous creptæ of the duodenum were very much enlarged. The small intestine contained a great quantity of yellow bile. Slight submucous injection was seen in it; the mucous membrane itself was intact. But at the distance of about half a foot above the cæcum, the inner surface of the intestine presented at first some isolated brown spots: lower down it was uniformly brownish. This colour resided in the thickened and softened mucous membrane. In this same space five small ulcerations were found the size of a five sous piece, the bottom of which, being whitish, was formed by the laminated tissue, which was scarcely thickened. The inner surface of the cæcum, and of the entire colon, presented a slight injection of the mucous membrane and of the subjacent laminated tissue. Not far from the cæcal valve we observed a small isolated ulceration similar to that of the small intestine. The mesenteric glands were brown and tumefied.

Spleen not very large. The gangrene of the penis occupied only the prepuce. On the sacrum the skin was destroyed, in height, from the coccyx to the level of the first lumbar vertebræ; and in breadth, over the entire extent of the transverse diameter of the sacrum. This bone was very much exposed. At the bottom of this large ulcer we observed a black detritus, whence an infectious odour was given off; all around the skin was detached to the extent at least of three or four inches.

Here it is only from the site of the ulcerations that we can suppose that they had been preceded by an exanthematous engorgement of the follicles; they were small, and no longer retained the form of Peyer's patches, but the mucous membrane surrounding them was more altered than in the greater number of the preceding cases. The same may be said of the mucous membrane of a part of the stomach. The injection of the brain was here proportioned to the intense delirium which existed towards the latter period; but in how many cases have we not found a similar state of delirium without finding in the brain any trace of sanguineous congestion?

In this patient there were many other causes of disease and death. The extensive ulcer of the sacrum, the hepatisation of a great part of the left lung, the gangrenous inflammation of the prepuce, were so many circumstances which must considerably increase the danger of the intestinal affection. Is it not also a remarkable circumstance, that the slight irritation occasioned by the introduc-

tion of the sound into the bladder was sufficient, in this case, rapidly to produce gangrene of a part of the penis? Lying on the back, also, and that not for a very long time, sufficed to produce gangrene of the skin of the sacrum, and to cause an extensive ulcer to succeed the falling of the eschar. Undoubtedly, such gangrenes cannot be accounted for by the intensity of the local irritation; they suppose a disposition altogether peculiar, similar to that which, in consequence of the slightest local lesion, occasions, in certain individuals, a sudden prostration, and all the phenomena indicative of this prostration. Is it not a similar disposition which is produced in us, when certain poisons, called septic, are introduced into the torrent of the circulation? The carbuncles (*charbons*) developed in this last case become, as it were, the anatomical character of the disease; but it is very evident that, far from causing it, they are themselves but an effect.

The nervous symptoms appeared here almost from the very commencement of the disease. The deafness, in particular, showed itself very early; it was one of the first phenomena which could indicate the development of a severe disease. After having lasted for four days, this deafness disappeared all at once, and at the same time the bladder became paralysed; at the same time, also, the parts of the skin which had been irritated began to become gangrenous. It was in the midst of these phenomena, which seem to indicate a depression of the strength, that the signs of pulmonary inflammation appeared. Why, in such a state, did the tongue, by a sort of exception to the law which we were entitled to deduce from the preceding facts, remain almost constantly in a condition nearly natural? To meet all these symptoms, was an antiphlogistic treatment indicated? I do no not think it; for we even see that the leeches applied to the anus were not followed by any beneficial result: we shall not say that they caused the prostration; but we shall only remark, that the day after their application the deafness had increased as well as the stupor and difficulty of moving; the loss of blood then had not at least any favourable influence. There was no epistaxis in this case, as in several of the preceding cases. Neither do we see that the cutaneous revulsives were of any benefit.

Case 22.—Diarrhœa at first; subsequently fever, dryness and redness of the tongue; intermittent delirium; coma—Blisters; diluent drinks; quinquina on the last day—Death on the thirtieth day; ulceration at the extremity of the small intestine; stomach healthy; pneumonia; spleen large.

A mason, sixteen years old, of delicate health, had been affected with purging for about three weeks, when he entered the hospital (September 4th). He had been confined to his bed for several days. He observed strict regimen, and drank barley water. We found him in the following state: —

Countenance somewhat cast down; listlessness; answers slow; tongue white, a little dry and red at the apex; anorexia, moderate thirst; mouth clammy; abdomen free from pain, but distended with gas; several liquid stools in the twenty-four hours, pulse frequent, and of ordinary strength; skin hot. (Rice water with syrup; emollient lavement; broth.) The patient went to stool several times. He raved during the night.

On the morning of the 6th, the tongue was red and a little dry, great thirst, abdomen always free from pain, and distended with gas; same state of the pulse and skin. The delirium reappeared at night.

7th, the same state. (Two blisters to the thighs.) They prevented not the delirium from being very violent in the night; five liquid very copious stools.

8th, drowsiness, but intellects perfect; emaciation of the face, features very much altered; continuance of the purging, pulse small, more frequent; skin not hot. (Blister over the abdomen; drinks, and emollient lavements; a little broth.)

In the evening and all the night the patient still raved.

9th, the eyes constantly closed; the patient, however, opened them when he was spoken to. His answers were slow and uncertain; features still more altered. Tongue dry, of a bright red colour at its apex; pulse small, moderately frequent; skin not hot; the surface of the abdomen to which the blister had been applied of a pale colour. (Decoction of rice; the following mixture: —

Infusion of orange leaves . . .	four ounces.
Mint water	one ounce.
Diascordium	one drachm (*gros*).
Soft extract of kina	half a drachm (*gros*).
Syrup of violet	one ounce.)

The delirium returned in the night.

10th, face cadaverous; answers slow, but accurate; articulation embarrassed, tongue dry; lips black; purging less; respiration accelerated and attended with sighs; pulse small, skin hotter than the day before; patient still strong enough to sit up; he died at six in the evening.

Post-mortem, fourteen hours after death. — A considerable quantity of limpid serum at the base of the cranium; none in the ventricles. Nothing else remarkable in the nervous apparatus.

The lower lobe of the left lung in a state of red hepatisation. This same lobe presented posteriorly some blackish spots, a sort of ecchymosis which existed only on the surface of the viscus.

The stomach was white through its entire extent, as well as the two upper thirds of the small intestine. The upper part of the inferior third was injected, and presented here and there patches of a redder colour. Lower down we observed numerous ulcerations with raised and rounded edges. The smallest might have admitted about the head of an ordinary pin, the largest nearly equalled the breadth of a thirty-sous piece; the laminated tissue which formed the bottom of them was considerably thickened, being of a dark red in some, and presenting in others a brownish grey tint, which seemed the result of gangrene. These ulcerations were closer together and more extensive, according as they were observed nearer to the ileo-cæcal valve. The portions of mucous membrane separating them were injected. The inner surface of the cæcum presented a deep livid red tint. The mucous membrane of the colon, through its entire extent, and that of the rectum, were also injected, and presented here and there patches of a redder colour. The spleen was very large and very dense.

Signs of intestinal irritation marked the commencement of this disease; the diarrhœa continued a long time without being accompanied by any serious symptom. The lesion of the digestive passages ultimately reacted on the rest of the economy, and then the symptoms of typhoid fever appeared. The alteration presented by the intestine after death was similar, in its nature and site, to that which we found in all the preceding cases. In all, this alteration differed only in intensity; and what cannot be too carefully observed is, that it is always the intensity of the alteration which decides the intensity of the symptoms. Here again, as in many other cases, the redness and dryness of the tongue are not explained by the state of the stomach, which was found to be perfectly healthy.

When the patient entered the Charité he appeared to be already in a state of great exhaustion; he became weaker and weaker, and after having presented some delirium at intervals, he fell into a state of coma, in which he died. The examination of the encephalon did not account for these cerebral symptoms.

Whilst, on the part of the nervous system, there had been functional disturbances, without any disturbances, anatomically appreciable, in the organs of innervation; there was, on the contrary, on the part of the respiratory passages, a

serious lesion of the organ, without there having been during life any disturbance of its functions; it was only some hours before death that any difficulty of breathing was observed.

The emollient treatment, exclusively followed during the commencement, did not prevent the disease from proceeding, neither were the revulsives of any use: no benefit was derived from the tonics, employed only forty-eight hours before death.

Case 23.—Diarrhœa at the commencement—Subsequently fever, and adynamic symptoms; delirium combated by leeches to the mastoid processes—Appearance of amendment after tonic treatment; death towards the 30th day by intestinal hemorrhage—Ulcerations of the extremity of the small intestine and cæcum.

A sawyer, twenty-eight years of age, had profuse diarrhœa for three weeks, when he entered the Charité on the 21st of November. He was then in a state of great debility; the tongue was very dry; intellects somewhat dull; pulse frequent and compressible; skin hot; some petechial spots scattered over the epigastrium; an air of stupor in the face. (Barley ptisan; strict regimen.)

On the following days the prostration increased, the spots became more numerous, the alvine evacuations began to be involuntary; some delirium supervened, which was met by the application of leeches behind the ears. The simple diluents were continued; two blisters were applied to the legs on the 26th. The adynamic state attained an extreme degree on the 30th; face livid; eyes extinct; intellect impaired; pulse very frequent; skin not hot; tongue very dry; stools involuntary, very copious, and serous. (Two new blisters to the thighs; mixture consisting of five ounces of infusion of orange leaves, a drachm (*gros*) of dry extract of quinquina, and one ounce of syrup of violet.)

During the first days of December, the strength returned a little; countenance improved. (Same treatment.) The patient died unexpectedly on the night of the 9th.

Post-mortem. Some injection of the gastric mucous membrane in its splenic portion. Nothing remarkable in the duodenum and the upper third of the small intestine. Large clots of black blood filled the two lower thirds. Above them the mucous membrane, to the extent of a foot above the cæcum, presented merely an intense colouring owing to sanguineous imbibition. Lower down there existed numerous ulcerations close to one another. Immediately below the cæcal valve no trace of blood was found. The cæcum was red, and presented five or six ulcerations. The remainder of the large intestine presented but a slight redness, arranged in numerous patches.

This case resembles the preceding, both in the form of its commencement (diarrhœa in both cases), and in several of its symptoms, and also in the nature of the changes found in the intestine. It differed from it in the uncommon circumstance which terminated it, at a time when, during the exhibition of tonics, the patient seemed to be improving. No particular lesion accounted for this profuse and sudden hemorrhage; it was not even announced during life by any bloody stools.

We have also seen a similar hemorrhage terminate the lives of three other individuals, who were likewise attacked with typhoid fever, and in whose intestine was found the exantheme above described, either simple, or with ulceration. In these three cases the hemorrhage had been announced by the great quantity of blood, which the patient passed by the anus a few hours before death. We have observed another instance of a similar hemorrhage, in a medical student, who also died, but on whom we were not able to obtain a *post-mortem*. He was affected for several days with continued fever, which, at first apparently mild, was subsequently accompanied with profuse epistaxis, and an alarming state of stupor. In this state he passed for the first time a

stool consisting of a great quantity of black very fetid blood, as pure as that which would have been obtained from a vein with the lancet. The following days he had several similar stools. After these evacuations he fell into a state of prostration, which went on increasing, and in the midst of which he died.

Instead of being exhaled by the mucous membrane of the small or large intestine, as in the subject of this case, the blood is furnished in others by the gastric mucous membrane, and we have then seen individuals, affected with typhoid fevers, vomit a black matter, like coffee-grounds, such as is vomited either in yellow fever, or in certain cancerous affections of the stomach.

Case 24.—Pleuritis at the commencement: copious bloodletting—Entrance into the hospital in a state of anæmia; tonic treatment; appearance of amendment; then a return of the serious symptoms, and death—Ulcerations at the extremity of the small intestine; injection of the gastric mucous membrane—Blood liquid—Spleen small and dense.

A man, about twenty-seven years of age, was brought to the hospital on the 1st of December, in the last stage of adynamic prostration: cadaveric paleness of the face and lips; eyes dull, half covered by the eyelid; pulse very frequent and thready; skin not hot; total abolition of the intellectual faculties; tongue very pale and dry. We ascertained that this patient had, three days before, a stitch in the side; that within the last forty-eight hours he had been thrice bled and that eighty leeches had been applied to him. This person was threatened with sinking very soon into an anemic state; M. Lerminier thought that there was an urgent necessity to raise his strength. (Aqueous infusion of quinquina, aromatic mixture, with the addition of a drachm of ether; camomile lavement, with the addition of a scruple of camphor; two blisters to the legs; aromatic frictions.)

On the next day we found a very perceptible improvement; countenance more natural, less pale; some of his answers sufficiently precise to questions addressed to him; pulse raised; skin moist, and of a gentle heat; tongue white and moist; abdomen free from pain; one stool; some subsultus tendinum. The tonic treatment seemed to succeed; it was continued.

On the 3d his ideas became incoherent; he was continually complaining; yet, in the midst of his delirium, his answers to questions were sufficiently precise; face always very pale, as also the tongue; constipation. (Lavement of quinquina and serpentaria, of each an ounce, and a scruple of camphor.)

On the 4th, intellects clearer; stammering; he seems no longer to have the power of directing the movements of his tongue; pulse always frequent and weak; skin not hot. (The same prescription.)

From the 5th to the 9th, the patient went on slowly improving. Strength a little increased; pulse less frequent; skin kept up a good temperature; the tongue recovered a natural appearance; abdomen soft and free from pain, and the stools, though passed involuntarily, were few in number, and of tolerable consistence. The patient was not delirious, properly speaking, but his intellects were very weak; he spoke and reasoned like a child. The infusion of quinquina, mineral lemonade, aromatic ethereal mixture, frictions to the limbs, lavement of kina, serpentaria and camphor, were continued.

On the 10th, the progressive amendment of the preceding days was gone. The alteration of the features principally announced this alarming change. The tongue which, on the day before, was moist and of a good colour, was dry as a bit of parchment. Temperature of the skin was raised. (Same prescription.)

On the 11th, delirium; extreme frequency of the pulse; it was beyond 140.

On the 12th, countenance cadaverous: extremities cold; no pulse at either arm; same state of the tongue; continual cries and complaints; death at night.

Post-mortem, sixteen hours after death. Total absence of subcutaneous fat; muscles gluey and livid.

Brain pale, bloodless, as well as its membranes. Two ounces of limpid serum at the base of the cranium.

Albuminous, membraniform flocculi scattered over the pleuræ costalis and pulmonalis of the right side, without the effusion of any liquid. Red hepatisation in several points of the lower lobe of the left lung.

Heart flaccid, devoid of colour, containing a small quantity of liquid black blood as well as the aorta.

Inner surface of the stomach red in the splenic portion. This redness had its seat in the mucous membrane itself, which was very much injected, but still retaining its ordinary thickness and consistence. Large veins, gorged with blood, traversed the laminated tissue.

Inner surface of the duodenum and the remainder of the small intestine slightly covered with bile as far as its lower fifth. In this latter part considerable redness was beginning to appear, at first in isolated patches, then continued to the extent of a foot and a half above the cæcum. These three small superficial ulcerations were observed to exist, each sufficient to hold a centime at most, the bottom of which presented a greyish colour, which was not removed by washing. The cæcum was also very much injected, the remainder of the large intestine was white, and filled with hard matter. The spleen was remarkably small and dense.

The ulcerations of the ileum were here very inconsiderable; around them no follicle was found developed; but there was in different points of the gastro-internal mucous membrane a brighter redness than in other subjects. The membraniform flocculi found in the pleura proved the existence of pleuritis, which seemed to have been the primary disease with this individual. The copious bleedings resorted to one after another to combat this pleuritis, before the patient entered the hospital, might have contributed to throw him into the very marked adynamic state which he presented the first time we saw him; a tonic treatment was tried; it seemed at first to succeed; it was continued, and whilst the patient was taking quinquina, serpentaria, camphor, and ether, the pulse fell, the tongue returned to its natural state, the countenance assumed a better appearance, the abdomen continued soft and free from pain; only there was always great debility. The intellect was that of a child, and the stools passed involuntarily. All at once this progressive amendment ceases, the tongue again becomes dry, delirium supervenes; pulse becomes very frequent, and, in consequence of this kind of recrudescence, the patient dies. What was the cause of it? The ulcerations of the ileum existed probably before the 10th of December; probably also they were already formed at the time the patient entered the hospital, and it may be admitted that at the time his state improved, the intestinal ulcerations diminished in extent; they were then probably in progress of cure when we examined them. It may be asked whether the gastro-intestinal mucous membrane, irritated by the long continued contact of stimulants, became suddenly the seat of hyperemia on the 10th of December? Is it only from this day we are to date the development of the redness which was found in several points of the stomach and intestines? Did this congestion, having supervened in an individual already much debilitated, occasion the appearance of the serious ataxo-adynamic symptoms of the last few days?

We may again notice, 1st, the bloodless state of the brain and its membranes, coinciding with a certain quantity of serum accumulated at the base of the brain.

2dly. The liquid state of the blood.

3dly. The small size and density of the spleen, which, in most of the other cases, we found so large and so soft.

Case 25.—Recent arrival at Paris—Slight continued fever; subsequently adynamic symptoms; disappearance of the latter; continuance of a slight purging; then cerebral symptoms, and death on the thirty-sixth day—Tonic treatment continued for a long time—Follicular patches of the small intestine more apparent than usual; follicles of the large intestine also more apparent.

A man, twenty-two years of age, residing in Paris for seven months, with fair skin, brown hair, small muscles, in the habitual enjoyment of good health, felt, on the 8th of May, without any known cause, great lassitude, wandering pains through the limbs, and violent sub-orbital headach. These symptoms continued on the following days. He kept quiet, and observed strict diet. He entered the hospital on the evening of the 13th.

On the 14th, face flushed; eyes sunk; his features altogether presented an air of remarkable stupor. Movements painful; indifference in answering questions; pulse scarcely frequent, full enough, but irregular; skin hot and moist; tongue red; thirst; continuance of the constipation. (Barley ptisan, linseed lavement, diet.)

Same state on the 15th and 16th. A stool each day. Every three pulsations the pulse had a well marked stop.

On the 17th, stupor, and air of prostration were remarkably increased. At the same time there was redness and dryness of the tongue; two liquid stools; increased frequency of the pulse, which lost its irregularity; burning heat of the skin. Inflammation of the digestive mucous membrane more marked than on the preceding days. The great stupor in which the patient lay, contra-indicated the employment of bloodletting, or was this stupor but the effect of the intestinal inflammation? M. Lerminier, after raising these questions, tried the application of thirty leeches to the anus. Their bites flowed profusely. Profuse sweat came on during the night. On the day after, the 18th, there was undoubtedly an improvement; particularly the appearance of the face was more natural; the features not so sunk; the tongue was now moist, and the fever was diminished.

On the 19th the serious symptoms of the 17th reappeared. The happy effect of the former application of leeches inclined M. Lerminier to try a second; but this time it did not appear to have so favourable a result. To be sure, on the next day, we found the fever moderated, the tongue moist and of a good colour; but the prostration had increased; the speech was a little embarrassed; the tendency to the adynamic state was evident.

On the other hand the symptoms of intestinal irritation seemed but very slight; there was but little frequency of pulse. Two blisters were applied to the legs; two cups of aqueous infusion of quinquina were given.

The two following days the tongue became red and dry. Only one liquid stool occurred every twenty-four hours. The abdomen still retained some softness. The quinquina was succeeded by a decoction of polygala with gum.

On the 22d and 24th, tongue was moist, and lost its red colour. On the evening of the 24th, profuse sweat; on the 25th, sweating on the abdomen; expectoration, since the preceding day, of a considerable quantity of yellowish, very thick sputa. Remarkable amendment.

On the four days after, very profuse sweats, copious, purulent sputa. Slight purging set in. The amendment became more and more marked. (Same medicines, some broths.)

On the 30th, he complained of having felt the entire night severe pains in the limbs. At the visit we found him perspiring, as on the preceding days, but we observed that the fingers of the two hands, except the index fingers, were flexed forcibly on the palm. The patient could extend them but very imperfectly, and with considerable difficulty. He was going on in other respects very well, had

no fever, and might be considered convalescent. (Infusion of camomile, rice cream, broths, a little wine.)

From the 13th of May to the 3d of June, three ounces of syrup of quinquina were given every day, principally with the view of combating the profuse sweats which, being prolonged beyond measure, seemed to retard the progress of convalescence.

On the 3d of June the quinquina was substituted for the syrup. M. Chomel, who took up the temporary management of the ward, tried to stop the slight purging, which continued, by adding to the barley ptisan a small quantity of muriatic acid.

From the 3d to the 9th, the state of the patient remained nearly the same. He became cast down, and his strength was not re-established. The flexion of the fingers continued.

On the 10th the stupor reappeared; pulse again became frequent. The patient had been told that the plague reigned in the Parisian hospitals. This false news alarmed him very much, and he considered himself as doomed to inevitable death.

On the 11th and 12th features rapidly decomposed; slight convulsive movements of the levator muscles of the left commissure of the lips; eyes fixed and wide open; pupils equally dilated; flexion of the fingers; intellect clear; pupils slow; tongue moist and bright red; from two to three stools. (Same prescription.)

On the morning of the 13th the countenance had a cadaveric aspect. The extremities were icy cold. A cold sweat oozed from the entire surface of the skin. The pulse was no longer felt. Still the intellect retained all its clearness. The patient continually asked to drink. The tongue retained its natural appearance. Considerable epistaxis had occurred the evening before. He died in the course of the day.

Post-mortem. About a spoonful of limpid serum was found in each lateral ventricle. None was found at the base of the cranium. Lungs very slightly engorged posteriorly.

Abdomen. — The stomach when viewed exteriorly was divided into two portions by a circular contraction at nearly its middle part. The small intestine, including the duodenum, was very pale, as far as about half a foot above the cæcum. It merely presented, in its lower part, six or seven oval patches, the bottom of which, being greyish, was studded with a number of small black points, close one to the other. At about six inches above the cæcum, the mucous membrane was considerably injected, but had not, however, lost its transparence. The inner surface of the large intestine, from the cæcum to the rectum, was studded with a great quantity of small black points isolated, and not agglomerated, as in the small intestine. Around them the mucous membrane made a slight projection, the result of which was an appearance entirely similar to that presented by the mucous cryptæ of the skin when they have attained greater development than ordinary. Between them the mucous membrane was white in several points, and injected in other points.

Do we find in this patient any lesion sufficient to account for the symptoms and death?

In order to answer this question, it is necessary to distinguish in this disease the three following stages: —

1*st stage.* It commences at the time of the invasion and extends to the period at which the patient entered the hospital.

2*d stage.* Commencing at this last period; it is characterised by the appearance of the purging, the dryness of the tongue, and the progress of the stupor.

3*d stage.* It commences on the 31st of May; the signs of a cerebral affection

predominate; the tongue resumed its natural appearance, a little purging continues.

During the two first stages the intestinal follicles were very probably the seat of an inflammation, the intensity of which increased with the severity of the symptom; if the patient had died at this stage, very probably Peyer's patches would have been found red, swollen, and forming on the inner surface of the small intestine those oval elevations of which we have had numerous instances in the preceding cases; at a little later period we might have found with this exantheme of the small intestine numerous red pustules (*boutons*) scattered over the large intestine; we then might have been able readily to establish a relation between the symptoms observed during life, and the intestinal lesions found after death, and this case would have afforded merely a repetition of the preceding. But it was not in these first two stages that the patient died; far from it, the alarming symptoms which he then presented, improved; the purging diminished; the tongue became moist; the strength was raised; and what is called the adynamic state disappeared; the intestinal lesions which we have seen hitherto uniformly correspond with this state, must then also diminish; this is accordingly what took place; and when we opened the body, we found no trace of it but an unusual development of the follicles of the ileum and of the large intestine; again, in a little time these follicles would have been completely effaced, or else they would have continued, and the individual would have remained subject to frequent returns of diarrhœa, without other serious symptoms.*

The disease then was progressing towards a cure when new symptoms supervened, which seemed to have their origin in a serious lesion of the nervous centres; no appreciable lesion of these centres was found in order to explain them; however, the stupor, which in twenty-four hours became extreme, the peculiar expression of the eyes, the permanent contraction of the flexors of the fingers, the convulsive movements of the muscles of the face, finally, even the nature of the cause to which the relapse might be attributed, seemed to indicate the existence of acute meningitis. There was observed, however, neither pain of head, nor delirium. But in how many varieties of meningitis do we not see these symptoms wanting?

In this 3d stage was another organ the seat of a lesion which might account for the nervous symptoms which characterise it? Had the brain, which was found healthy, been but sympathetically irritated? In vain we sought for this seat in the remainder of the digestive tube, which presented nothing abnormal except this development of the follicles, to which we have already directed attention. Such as we found it at the time we examined the body, it was very evident that this lesion of the follicles could exercise no influence on the symptoms of the third stage. Here then is a well-marked case in which pathological anatomy cannot account in any way either for the functional disturbances, or for the death of the patient.

But the disease, though not having left in the organs any trace of its existence, had nevertheless a most evident seat; the symptoms indicated that this seat resided in the nervous system. The brain, strongly acted on by an intense moral emotion, was irritated, and drew to itself the little strength which the

* We have found a similar development of the intestinal follicles, 1st, in persons, who, several months before, had had what is called adynamic fever; 2dly, in others, who never had any such disease, but in whom for a longer or shorter time, there existed a chronic diarrhœa; 3dly, in some other individuals, who, never having had a bad fever, had not even been affected with purging towards the termination of life. It is very common to find them in the intestines of animals, in those of dogs, horses, and sheep. It appears that the intestinal follicular apparatus is naturally more developed in these animals than in man; likewise what in them as an entirely physiological state, can no longer be regarded as such in man.

individual still possessed. Thence the increase of the prostration, which made rapid progress, at the same time that the nervous centres appeared to become the seat of a constantly increasing vital action.

Let us now direct our attention to some of the phenomena of the disease and to its treatment.

The tongue, red and white in the first stage, dry in the second, presented in the third a natural appearance. However, with this natural state of the tongue, and though on opening the body the stomach was found to be very healthy, the patient was tormented with a burning thirst. This thirst seemed to be sympathetic of the state of the brain, in the same manner, as under other circumstances, we see delirium, convulsions, etc., manifest themselves, as phenomena sympathetic of the state of the stomach. Most of the acts of the life of nutrition may thus be increased, diminished, or perverted in their exercise by the sole influence of the nervous system, and without corresponding material lesion.

The constipation existed at the commencement of the disease at a period when very probably disease of the follicles already existed; it was replaced towards the thirteenth day by a purging which was never very considerable, but which continued up to the last.

The abdomen was considerably soft and free from pain.

The pulse presented remarkable irregularity at a time when the disease as yet presented nothing serious. This irregularity disappeared according as the disease assumed a more unfavourable character. Can we assimilate this case to that of a man mentioned by De Haen, whose pulse, intermittent in the state of health, became irregular every time he had fever? Shall we again assimilate it to the following case cited by Rasori? (Petechial fever of Genoa, Case 14.) In an individual attacked with the epidemic disease, the pulse, which during its progress had never been intermitting, became so on the cessation of the fever; the patient then stated, that in his habitual state of health he had an intermitting pulse.

The treatment was at first antiphlogistic; and we have seen how useful the first application of leeches was. Under its influence, not only did the symptoms of the gastro-intestinal inflammation improve, but also the stupor disappeared, and the strength rose. After this first bloodletting a profuse sweat came on; but the improvement was but temporary, and the second application of leeches was far from being as serviceable as the first; at least it was followed by a rapid increase of the prostration. Did this different result of the two bleedings prove that, when the first was resorted to, the strength was only oppressed, whilst at a later period a real adynamic state existed? Brown would have seen here a case of that indirect debility, which he considered, as succeeding, in most diseases, the sthenic stage. Tonics were then tried; but the quinquina was scarcely given when the tongue became dry; it was followed by polygala root; and during the use of the latter substance the tongue became moist.

However, the disease did not attain a crises; its prognosis was still very uncertain, when on the evening of the sixteenth day, profuse sweats and puriform expectoration spontaneously set in. This double evacuation which was accompanied by a well-marked improvement, continued to go on the four or five following days. Was it critical, in the sense which authors attach to this term? We have seen in the other parts of this work, and we shall again see in the present part, a certain number of cases in which there was a remarkable coincidence between the appearance of a sweat and the rapid transition from a bad state to a decided convalescence; but it is more rare to see the appearance of sputa coincide with such a change. On reading the works of authors it is easy to see that the sputa which they have called critical, are frequently nothing else than the natural termination of a pulmonary catarrh which complicated the disease, and which was resolved simultaneously with it. It does not appear, how-

ever, that such was the case with our patient. He expectorated all at once opaque, purulent sputa, without having presented on the preceding days any symptoms of pulmonary irritation; but he had not been examined with the stethoscope.

We should observe also that the sweat lasted beyond the time during which it could be considered as critical.

Case 26.—Recent arrival at Paris—Symptoms of typhous fever—Treatment by bloodletting at the commencement; at a later period simple diluent drinks—Death by pneumonia during convalescence—White ulcerations towards the extremity of the small intestine.

A mason, twenty-eight years of age, residing in Paris for only a few months, entered the Charite with the different symptoms which characterise bilious fever; sub-orbital headach; yellow tint around the lips and alæ nasi; great flush on the cheeks; tongue covered with a thick yellowish coat; bitter taste in the mouth; desire for acid drinks; thirst; abdomen soft and free from pain; three or four liquid stools in the twenty-four hours; pulse frequent and hard; acrid heat of skin; answers embarrassed and painful; intellect dull, the patient has but a confused recollection of what happened him previous to his entering the Charité. (Twenty leeches to the anus; barley ptisan; diet.)

Same state next day (barley ptisan; sinapisms).

On the following days the tongue became red and dry; abdomen slightly tympanitic; purging continues; intellect more and more obtuse; same delirium from time to time. A bleeding of twelve ounces was resorted to; twenty-four hours after every thing became worse; the patient no longer answers questions; the tongue was observed to be dry and cleft; a viscid mucus, of a dirty grey colour, covered the lips and teeth; seven or eight liquid stools; pulse very frequent and weak; skin had but little heat; some subsultus tendinum. (Barley ptisan with gum; diet; sinapisms to the legs.)

During the six following days the state of the patient remained unchanged; nothing given him but the barley ptisan.

At the end of this time the intellects gradually recovered their integrity, the stupor diminished; the movements became more free; the tongue became moist; the lips and teeth became clean; the purging diminished; but did not entirely disappear.

The patient was soon considered convalescent; he no longer presented any other morbid phenomena but a little purging; the skin remained constantly dry. Some broths were allowed him, then some potage, and also a little wine.

The state of convalescence became more and more established, though there still remained a little purging, when one day we ascertained the return of the fever; the patient told us that since the day before he was attacked with a stitch in the side; we soon discovered all the signs of commencing pneumonia. On the following days it became more and more intense, and terminated in death. No bleeding employed; blisters were applied to the chest and lower extremities.

Post-mortem. Red hepatisation of the lower and middle lobe of the right lung; slight membraniform exudation on the pleura of this side.

Remarkable paleness of the gastro-intestinal mucous membrane, from the cardiac orifice to the anus. At the distance of a foot below the cæcum we found five or six white points where the mucous membrane was wanting. In its stead the submucous cellular tissue was found exposed, which was not in any way changed.

It appears to us probable that the parts of the ileum where we found no mucous membrane were the seat of old ulcerations which were on the point of cicatrising; a slight diarrhœa was the only sign which could incline us to think that

there was still some lesion of the digestive passages when every thing announced a state of convalescence. If the pneumonia had attacked this individual only a little later, it is very probable that we could not have found ulcerations, properly speaking, and that in those places where we found the submucous cellular tissue exposed, we would have met a membrane of new formation, similar to that of which the following case will present us an example.

If it cannot be affirmed that in the subject of this case the bloodletting was injurious, at least it may be remarked that it did not arrest the progress of the disease; far from it, the day after the bleeding, the adynamic state was more decided, and all the symptoms became evidently aggravated. We think that much harm would have been done by following up the bleeding. On the other hand, would tonics have been useful? The preceding case would incline us to answer the question in the affirmative. Be that as it may, we refrained from them here entirely, and if we except some sinapisms applied to the legs, the patient was entirely left to nature. Alone, she sufficed to bring this serious affection to a happy termination; alone also, she would probably have finished the entire cicatrisation of the intestinal ulcers.

This cicatrization is sometimes deferred for a very long time; there are cases where the ulcers survive the acute disease, and occasion chronic diarrhœa, which is accompanied by a slow fever, and ultimately carries the patients to the grave after having gradually reduced them to the last degree of marasmus. We saw an instance of this in a young girl, seventeen years of age, who entered the Maison de Santé with the very worst symptoms of an ataxo-adynamic fever. For nearly a month she had the tongue dry and black, the abdomen tympanitic, continual diarrhœa, a very frequent pulse, an acrid heat of skin, and different nervous symptoms, such as stupor, delirium, coma, subsultus tendinum, etc. At the end of this time the tongue again became moist and pale, the abdomen fell, the nervous symptoms disappeared, the skin lost its heat, but the pulse retained a little frequency, and the diarrhœa did not stop. The purging continued for the two following months; five or six stools occurred every day, the abdomen in other respects was flat and completely free from pain. There was no other morbid phenomenon but this diarrhœa, and the patient continued to pine away from day to day, and fell into a state of marasmus. She died in three months. Some leeches applied at the commencement, either to the anus, or over the abdominal parietes, blisters applied to different points of these same parietes, lavements with the laudanum or diascordium frequently repeated; at a later period lavements with the addition of rhatany root; simple mucilaginous drinks given by the mouth; such were the principal means employed; they were ineffectual. A strict diet was at first observed; subsequently the patient was nourished with different feculas, milk and eggs. She took her food with pleasure, except during the last fifteen days of her life, when bilious vomitings set in which accelerated death some days. At the *post-mortem* we found the following morbid appearances in the digestive tube.

All the inner surface of the small intestine was remarkably pale, and all its coats were very much attenuated. In the lower sixth of the ileum, we found a number of Peyer's patches which formed a slight projection above the level of the mucous membrane, and which presented a bluish tint. Close to the cæcum there existed four ulcerations, two of which might each have admitted a five franc piece, and the other two did not exceed in diameter a forty-sous piece. The bottom of these four ulcers was formed by the muscular tunic, and here and there we observed in this same bottom, which was white, some debris of the mucous membrane which had a bluish black tint. This same tint appeared, for the space of two lines, around each ulcer.

The inner surface of the large intestine presented a great number of small

black points, which appeared to us to be so many follicles: between these points the mucous membrane was white, but very friable.

The mesenteric ganglions were but slightly developed.

With respect to the stomach it was coloured with bile on its inner surface through nearly all its extent. Its mucous membrane was every where of good consistence; it presented towards the pyloric region, somewhat of a mamillated appearance, not the least trace of injection was found in it. Thus the bilious vomiting which took place towards the termination of life could not be explained by an inflammatory state of the stomach, and the cause which for several successive days had brought bile into this organ, entirely escaped us. The liver was merely pale.

We should add that, as in the cases where death supervened during the acute stage, we found the spleen doubled in size, and softened.

In the cases now given, the continuance of the ulcerations kept up the diarrhœa, a long time after all the symptoms of the acute stage had disappeared. Here is another case which, like the preceding, occurred at the Maison de Santé, in which, though the ulcerations also continued, the diarrhœa ceased, at the same time that all the symptoms improved. The subject of this case was a man twenty-two years of age, who was admitted into our wards with the different symptoms of typhoid fever (stupor, disturbance of the intellect, great prostration, tongue dry and dark, gaseous development of the abdomen, profuse diarrhœa, pulse very frequent, rose-coloured spots over the abdomen). By degrees these symptoms improved, and a sort of convalescence seemed to commence; the tongue took on the most natural appearance; the abdomen had become soft; when pressed on every point, it was free from pain; *the purging had ceased*, and it became necessary to administer lavements, in order to produce alvine evacuations. But on the other hand, the frequency of the pulse did not cease; the patient continued to waste away, and every day his strength diminished. He remained for three months in this state, complaining of no pain, having his intellects perfect, taking some mild aliment, and seeming to digest them; never going to stool, unless after the administration of a lavement, and never passing any thing but some hard scybala. Having arrived by degrees at an extreme degree of marasmus, he ceased to speak, his extremities became cold, his pulse disappeared, and he expired, after having merely lost, during the last twenty-four hours of his life, a little of the clearness of his intellect. *The purging did not reappear for a single instant;* the urine was remarkable for the insupportable fœtor, which exhaled from it at the moment it was being voided, it was at the same time very turbid.

The *post-mortem* presented the following changes:

No appreciable alteration existed in the encephalon and its appendages. The left lung, remarkable for its great lightness, contained no blood; the right lung was heavier; towards the lower part of its upper lobe, there existed a circumscribed engorgement, which occupied the size of a large nut; in this part the pulmonary parenchyma was impervious to air, granulated on being cut into, of a dirty grey colour, and very friable. The posterior part of this same lung was engorged.

The tissue of the heart was firm and pale. Its cavities contained clots formed of white fibrin. The vessels were not coloured, and contained a little liquid blood. At the union of its upper four-fifths with its lower fifth, the œsophagus presented two oval ulcerations, the greater diameter of which lay in the direction of the axis of the œsophagus. A little below these ulcerations, the epithelium was destroyed, then it reappeared under the form of an irregularly cut band, to the extent of an inch in breadth around the cardia.

The stomach was every where white on its inner surface. In the pyloric

portion the mucous membrane was mamillated; in the splenic part it was sufficiently thin; it existed however every where in this part, and everywhere it could be detached in shreds from the subjacent tissues. The stomach contained a small quantity of liquid free from any odour.

The duodenum presented nothing but a yellow colouring of the free edge of the valves.

The ileum, in its lower fourth, presented a great number of Brunner's follicles, white, and forming a projection above the level of the mucous membrane, and still further half a dozen elliptical patches. These had a black colour, which constituted as it were their bottom. Above this black bottom, there was observed a certain number of agglomerated follicles, similar to those of Brunner, and forming by their assemblage as it were a second plane not continued, and of a greyish white colour, above the other plane, which was deeper and blacker. In certain points of these patches, ulcerations were found, whose edges were black, and whose bottom, on a level with the edges, was formed of the muscular membrane, the transverse fibres of which were seen exposed and perfectly white.

The valve and inner surface of the cæcum presented a slate-coloured tint. In the colon there was found a great number of small follicles, scarcely projecting, but easily recognised by means of a black point, which constituted the centre of a slight elevation, where the mucous membrane was of a duller white colour, an elevation which was circumscribed by another greyish circle.

In one point of the colon there was found an ulceration which appeared to have a tendency to cicatrise. This rounded ulceration, capable of containing a five-sous piece, was limited by a black circle. Its bottom was on a level with the rest of the mucous membrane; it was formed by a fine membrane similar to the membrane of the sinuses, in which was seen a vascular network.

The spleen was not large, and was rather soft. The liver was pale and dense. The urinary apparatus was healthy.

Case 27.—Ataxo-adynamic symptoms—Death by pneumonia during convalescence—Thin membrane, without follicles, or villi, continuous with the mucous membrane, in the points ordinarily occupied by the aggregated follicles.

We did not see during his life the individual who forms the subject of this case. We ascertained that having entered the Charité two months before, he there presented all the symptoms of typhoid fever; that he was completely cured of it, and that he was on the point of leaving the hospital, when he was attacked with pneumonia, of which he died.

We found a mixture of red and grey hepatisation in a great part of the left lung. The stomach presented a slight arborisation towards its great cul-de-sac; this same arborisation was observed in several points of the small intestine. Near the cæcum there appeared seven or eight places where the mucous membrane was much thinner than elsewhere; on examining it under water in the sun, we found that in these same places this mucous membrane, which appeared unusually thin, presented no trace of villosities, which were very numerous in the surrounding parts; one would have taken it for a portion of the bronchial mucous membrane. These places corresponded to those which are occupied by Peyer's patches. We thought that there was a period of the disease when those patches were destroyed; that at a later period the ulcers which had succeeded the destruction of the mucous membrane were cicatrised, and that the membrane found in the place ordinarily occupied by these patches was a newly-formed mucous membrane, a simple cellulo-vascular layer, which now, however, was continued with the portions of the mucous membrane which had formerly constituted the edges of the ulcers. Were villosities formed afterwards over this new membrane?

In the different cases which we have hitherto cited, we have been able to see the dothinenterie arise with the fever, continue through its entire course, and cease with it, or only a mere vestige remain after it. Why then should we not attribute the greatest influence in the production of the symptoms to a lesion which appears and disappears with them? Yet cannot these symptoms exist only when there is dothinenterie? The following cases will prove the contrary.

ARTICLE II.

CONTINUED FEVERS, CONNECTED WITH OTHER FORMS OF GASTRO-INTESTINAL INFLAMMATION THAN FOLLICULAR ENTERITIS.

In all the cases included under this article, we shall still find the different symptoms which the cases under the first article presented to us, and the aggregate of which constitutes the ataxic and adynamic fevers, such as Pinel has described them. But in some of these cases only, we shall see these fevers present the same course, the same duration, the same connexion of morbid phenomena, as in those which are connected with special inflammation of the intestinal follicles; they will still be typhoid fevers, in the sense which M. Louis has attached to the term. They are, no doubt, mere exceptions, and it remains no less true that the typhoid fever, such as M. Louis has described it, coincides almost always with an affection of Peyer's glands; but these exceptions, of which M. Louis himself has published two cases, it is important to notice.

This fever, which is characterised less by the symptoms which accompany it, than by their aggregate and by the manner in which they are connected, and succeed each other, we shall no longer find in other cases, which, however, shall still present to us the *typhoid state*, or, if it be preferred, those same ataxic or adynamic symptoms, which acquire in typhus, properly so called, their maximum of development.

Case 28.—Delirium and other nervous symptoms—Tongue natural—Numerous ulcerations in the stomach—No other lesion.

A shoemaker, forty-five years old, of a very strong constitution, entered the Charité, October 4th, in such a state of delirium, that we could obtain no information with respect to his previous state.

On the morning of the 5th, we observed him in the following state; eyes haggard, sardonic grin, no answer to questions. Countenance expressed pain on making even slight pressure on any point whatever of the abdomen; but it also expressed it, when pressure was made either on the ribs, or the extremities. Tongue moist, and of the ordinary appearance; no stool since his admission; breathing free; pulse sufficiently full, and of moderate frequency; little heat of skin. He died at eight o'clock at night.

Post-mortem. The inner surface of the stomach presented along the great curvature six or eight small superficial, rounded ulcerations, with red bottoms, their diameter being on an average that of a centime. In the interval between them the mucous membrane was but slightly red.

No alteration existed in the rest of the digestive tube; it presented some few red patches. Nothing remarkable in any of the other organs.

In this case, as in several of the preceding, the brain appeared to be the origin of all the symptoms; in this organ the primary seat of the disease seemed to be. Still the brain and its appendages were found to be exempt from all lesion, and the digestive tube, which had presented no functional disturbance during life, was the only part found altered in the dead body. But this alteration differs very

much from those seen in the preceding cases. Peyer's patches were intact; the small intestine as well as the large was healthy; the stomach alone was diseased; and what is very remarkable is this, that, when the inner surface of the stomach was studded with numerous ulcerations, the tongue presented during life the most natural appearance.

The symptoms presented by this patient differ not in other respects from those which we observed in a great number of individuals, in whom Peyer's glands were especially affected. We shall again find, in several of the cases which are to follow, the same identity of symptoms with lesions which shall always reside in the digestive tube, but which shall differ considerably from each other, either in their seat or in their nature.

Case 29.—Ataxic symptoms; alternations of delirium and of perfect intellect; hydrophobia; convulsions—Tongue natural; pulse not frequent—Redness in different points of the digesrive tube—Injection of the cerebral substance—Pulmonary tubercles.

A man twenty years of age, who had a cough for a year, and had spit blood several times, felt general illness during the first of November. On the 10th, he entered the Charite. He coughed very much; his sputa were viscid, a little bloody; pulse scarcely frequent. (He was bled to two palettes.) Blood was not buffed. On the 11th, he was in a state of torpor. When questioned, he returned no answer; when raised, he fell back as an inert mass, and hid his head under the clothes. Pulse was remarkably slow; countenance very pale; tongue preserved its natural appearance. Some symptoms seemed to mark the commencement of acute hydrocephalus. (Eight leeches were applied on each side of the neck: sinapisms; barley.)

Agitation and delirium all the night. In the morning of the 12th, drowsiness; pain in the left temple; right pupil perceptibly more dilated than the left; cheeks a little red; lies on the right side; tongue white and moist; breath fœtid; abdomen free from pain, and soft; two stools; pulse 46. (Blisters to the legs; whey with the addition of half an ounce of sulphate of soda to the pint. The following mixture to be taken in spoonfuls: — orange flower water, 4 ounces; mint water, 1 ounce; acetate of ammonia, 1 drachm (*gros*); sulphuric ether, 1 drachm; syrup of violets, 2 ounces.)

In the course of the day frequent alternations of profound stupor and violent agitation; no stool.

On the 13th, the intellectual faculties were alternately lucid and very much disturbed; the inequality of dilatation of the pupils continued; the respiration was sometimes very slow, sometimes very much hurried; pulse fifty-five; heat of skin moderate; the face became red and pale alternately. (Lavement, with the addition of an ounce of senna and six grains of tartar emetic; a pint of veal broth with half an ounce of sulphate of soda; aromatic frictions on the extremities.) Copious stools in the course of the day.

On the 14th, the same state. On the 15th, the patient had a sort of horror of liquids. The moment any thing was offered to him to drink, his face became injected, his eyes were flushed, his lips were moved convulsively; and if a little liquid was introduced into the mouth, he threw it out with force; the tongue retained its moisture; pulse sixty. (Two more blisters to the thighs.)

On the 16th, the symptoms of hydrophobia of the preceding day no longer existed; the right eye was forcibly turned inwards; the pupil of this eye constantly remained more dilated than the other, the left eyelid was depressed; pulse not frequent. (Emollient ptisans; camphorated lavement.)

On the 17th, the right eyelid was now paralysed; an enormous quantity of urine distended the bladder; great talkativeness; subsultus tendinum; tongue always moist.

On the 18th, head and face were inundated with sweat, whilst the skin on the rest of the body was dry ; the eyes were closed ; the pupils, very much dilated, scarcely contracted on the approach of light ; subsultus tendinum very much increased ; face very red ; pulse frequent for the first time (101) ; no stools. (Purgative lavement ; whey with tamarinds.)

Profound stupor the entire day. Death without a struggle at 7 o'clock at night.

Post-mortem, eighteen hours after death. *Cranium.* — Cerebral sinuses filled with blood, cerebral substance of ordinary consistence, marked with a considerable quantity of red points ; about a spoonful of limpid serum in each lateral ventricle.

Thorax. — Old adhesions of the pleuræ on both sides ; right lung studded with miliary tubercles ; cavity at its apex, capable of lodging a pigeon's egg, filled with pus. In the left lung, equally filled with crude tubercles, there was a larger cavity, which was empty. Heart pale, filled with liquid blood.

Abdomen.— Adhesion of the great epiploon to the abdominal parietes by old cellular bands ; the stomach presents internally to the left of the cardia a red patch, broad as a three-franc piece ; every where else the mucous membrane is white and healthy ; most of the valves of the duodenum were of a bright red colour ; in the intervals between them the mucous membrane presents a rose tint. The small intestine, opened through its entire extent, presented here and there, towards its middle part, merely some reddish valves and a few arborisations. Invagination of three inches of the upper third of the jejunum ; a considerable quantity of bile filled all the small intestine. The large intestine, filled with hard fæcal matters, was very white.

An enormous quantity of limpid urine distended the bladder, as well as the ureter, pelvis, and calices of the right kidney.

In this subject we find very slight lesions in the digestive tube. The red patch in the great cul-de-sac of the stomach, the redness of the valves of the duodenum, the slight injection of some points of the small intestine, are observed in many cases where, during life, symptoms altogether different have existed ; thus we think that here there are strong reasons to doubt that very slight lesions found in the digestive tube were really the cause of the ataxic symptoms observed during life. Can the injection of the brain account for them ? That also may be doubted.

In this case, as in the preceding, the tongue appeared very different from what we have found it in most of the cases of dothinenteries, which form the subject of the observations contained in the preceding article.

Let us remark also how varied the symptoms were : among those symptoms we may recollect the inequality in the dilatation of the pupils, the temporary deviation of one of the eyes, the alternate paralysis of the two upper lids, the rapid transition from lucid intellect to complete delirium, from profound coma to the most violent agitation ; the well-marked hydrophobia which existed for twelve hours. On the part of the functions of organic life, we should recollect the respiration sometimes accelerated and sometimes very slow ; the disturbance of the circulation marked in the small vessels by the quick alternations of redness and paleness of the face, in the heart and great arterial trunks, by the extreme slowness of the pulse ; the bladder struck with paralysis ; the muscular fibres of the large intestine, which had also become insensible to the action of purgatives ; in the midst of all these disturbances the tongue remaining in its natural state.

The treatment was directed exclusively against the cerebral symptoms. By perusing the details of the case, it may be seen how far these symptoms were influenced : — 1st, by the two bleedings employed towards the commencement. 2dly, by the blisters applied to different points of the cutaneous surface. 3dly,

by several stimulating substances, called antispasmodics, administered by the mouth, or in the form of lavement. 4thly, by the purgatives taken several times into the digestive tube, sometimes by the stomach, sometimes by the rectum.

Case 30.—Fever at the commencement; epigastric pain; vomiting—Subsequently symptoms of tetanus and death—Intense redness of the stomach.

A middle-aged man was seized, without any known cause, four days before entering the hospital, with profuse bilious vomiting, pain in the epigastrium and fever. About twenty hours after the appearance of these symptoms, this person began to feel some difficulty in depressing the jaw; violent trismus soon set in, and continued for the two following days. Having entered the Charité at the end of this time, he presented the following state:

Trismus. Head retroverted and kept in this position by the muscles inserted into the occipital bone; rigidity of the four extremities; abdominal parietes hard as a board; intellect intact. The patient himself detailed to us the particulars now described: he articulates distinctly enough, notwithstanding the trismus. He no longer experiences any pain in the epigastrium, and did not vomit since the appearance of the first tetanic symptoms. After the visit he was removed into the surgical wards, and died there that same night.

Post-mortem. Cranium. — Slight injection of the membranes; some red dotting of the cerebral substance. The different parts of the encephalon, examined with the utmost care, presented no appreciable alteration. *Spine.* — Sound state of the spinal marrow and of its membranes, which were pale.

Abdomen. — The gastric mucous membrane presents through its entire extent an intensely red colour, which is not perceptible until a thick layer of mucus which lines the surface has been removed. This colour, which resides in the mucous membrane, is owing to the injection of an immense number of small vessels, the beautiful anastomoses of which may be readily traced by the eye. The membrane is not, in other respects, perceptibly softened. The rest of the digestive tube white. The tissue of the spleen remarkable for its consistence.

We have seldom seen in the stomach so intense and so extensive a red colouring; one would have said at first, that the inner surface of the stomach had been uniformly tinged. The mucous membrane thus coloured had retained its physiological consistence; only its habitual secretion seemed to have been increased.

The onset of this gastritis had been well-marked; but the tetanic symptoms had scarcely commenced to show themselves, when the symptoms referable to the stomach became much less evident.

If the tetanus was, in this individual, the result of irritation transmitted sympathetically from the stomach to the spinal cord, there must be admitted to exist in this person a special predisposition, in virtue of which tetanus would have equally declared itself, no matter what organ had become the seat of irritation. Thus we remember to have seen at the Charité an individual labouring under chronic pleuritis, who, after the application of a seton on the chest, was attacked with tetanus, of which he died.

Case 31.—Symptoms of acute meningitis (ataxic fever)—Tongue natural—Profuse blood-letting—Intense injection, in several points, of the mucous membrane of the lower third of the small intestine.

A man, thirty-three years of age, black hair, brown skin, muscles well developed, felt, on the 8th of October, a weight of head more inconvenient than painful. In the evening there was general uneasiness; delirium at night. He entered the Charité on the 9th. When seen by the clinical clerk, he was

rational; but he complained of dizziness, of tinnitus aurium; some purging since morning. At night he raved again.

At the visit of the 10th, he presented the following state: remarkable exaltation in his ideas; great loquacity; still his answers were clear and precise; extreme activity in his movements; face red; expression of the eyes natural; pulse full, very hard, moderately frequent; temperature of the skin natural; tongue moist and clean; abdomen soft, and free from pain. Three liquid stools the last twelve hours.

In this individual the brain seemed to be the seat of a sanguineous congestion, indicated, at present particularly, by the exaltation of the intellect, and at night by its perversion. (Bleeding to three palettes; diluent ptisans.) No change in the course of the day; two or three stools. In the evening and at night there was acceleration of the pulse, return of the delirium,

On the morning of the 11th, reason returned, and we found the patient in the same state as at the visit of the 10th. (Another bleeding to the extent of three palettes; sixteen leeches to the neck.) The blood of both bleedings was covered with a thick buffy coat.

In the evening there was delirium, as on the preceding days; at night the patient became furious; he broke the cords with which he had been tied, and four men could scarcely hold him. On the morning of the 12th, the delirium continued. The patient lying on his back; face very much injected; eyes sparkling and rolling violently in the orbits; he uttered continual cries; in the midst of his delirium he spoke only of objects connected with his state; profuse sweat poured from the skin of the cranium and face; the rest of the skin was dry. The constant movements of the arms did not allow us to ascertain the state of the pulse. The tongue retained its natural appearance. Such was the state of the patient at eight o'clock in the morning. (Thirty leeches to the neck; bleeding from the arm.) One hour after, at nine o'clock, the blood from the leech bites flowed profusely; venesection was performed, notwithstanding the violent resistance of the patient. However, no improvement occurred: at half past nine again he exerted great muscular strength; we heard his voice at more than fifty paces from the bed; all at once he ceased to vociferate; his face became injected and swollen; his extremities rigid; his respiration was arrested; and in less than five minutes he expired.

Post-mortem. Pia mater of the convexity of the brain but slightly injected. Small quantity of limpid serum in the ventricles, such as is seen after all kinds of death. The cerebral substance, when sliced, preserved everywhere its natural consistence, but it presented everywhere a great number of small red points, from which blood flowed. Neither the spinal cord, examined through its entire extent, nor its membranes, presented any appreciable lesion.

The lungs were healthy. The heart presented remarkable dilatation of the left ventricles, without hypertrophy of its parietes.

The inner surface of the stomach was white, as also that of the small intestine, as far as the union of its upper two-thirds with its lower third. In this latter third there were observed numerous red spots, seated in the mucous membrane, which in other respects appeared neither denser, softer, nor thicker than in the interval between those spots, where it was white. Thus, these spots represented a multitude of circumscribed inflammations, none of which had passed the first stage, or, in other words, that wherein there is as yet only injection of the mucous membrane, without thickening or softening of its substance. Large intestine white.

In the individual whose case is here given, the cerebral symptoms were so predominant, that they seemed to announce an idiopathic lesion of the encephalon; and particularly a well-marked lesion of the membranes. The nature of the phenomena, the continual exaltation of his ideas with intermittent deli-

rium, and, in the last stage, a furious delirium, seemed even to indicate that this inflammation had its site particularly in the arachnoid which covers the convexity of the cerebral hemispheres; yet no arachnitis existed, and the extremity of the small intestine alone presented an inflammation which, during life, had not been disclosed by other signs than a very slight diarrhœa. It now remains to be determined whether this inflammation, sympathetically irritating the brain, occasioned the frightful group of nervous symptoms which brought the patient to the grave. I shall content myself with stating the fact, leaving the reader at liberty to admit or reject this connection between the intestinal inflammation and the cerebral symptoms: it is because this case is so very marked, that I thought it deserving of some interest. I shall once more call attention to the manner in which death supervened. Here death struck the patient suddenly, when the vital energy was still very great, and it was, in a manner, without any intermedium, that life was arrested in him. Would it not appear that, in this case, the sinking of the brain succeeding its excess of action suddenly, the suspension of the breathing, and consequently of all the functions, was the result of the sudden and complete cessation of the nervous influence? Let us not strive to search too deeply for the cause of these phenomena, which a century back would have been accounted for very differently, and which will one day probably be explained in a manner just as different as that in which we now explain it, whether in consequence of additional knowledge being acquired, or by reason of the prevailing medical opinions.

Some of the cases now given entirely resemble those where there was dothinenterite, in the existence of nervous disturbances; in them, however, the symptoms called ataxic are much more prominent than those called adynamic; in them also the tongue scarcely deviated from its natural state; we have also seen this natural state of the tongue retained in some cases of dothinenterite, but much more rarely. In these cases the abdomen was not tympanitic, but we have seen this phenomenon wanting also in many individuals affected with dothinenterite. Here now are two other cases in which this latter phenomenon was also wanting, as well as in the preceding, and still where the symptoms were much more completely those observed in dothinenterite.

Case 32.—Symptoms of typhus; tongue dry and black only at intervals; tympanitic state of the abdomen towards the end—Alternations of quick excitement and great depression—Blisters; camphor in lavement; wine and broth; ice to the head—Death towards the 20th day—Partial redness of the gastro-intestinal mucous membrane—Injection of the cerebral substance and of the membranes—Spleen large and soft; liquid blood in the heart.

A man, about thirty years of age with black hair, brown skin, strong make, with considerable embonpoint, was brought to the Charité on the 27th of February, in such a state that we could obtain no information regarding his previous history: we merely ascertained that he was sick for the last fifteen days; that on the 23d of February he had taken a vomit, and that the day after leeches were applied to the epigastrium. 25th, he had ceased to speak. Brought to the hospital on the 27th; he answered no questions; features were expressive of great stupor; skin cold; pulse scarcely perceptible; small rose-coloured spots, most of them being from half a line to three lines in diameter, were scattered in considerable number over the antertor part of the chest and abdomen, also on the upper and lower extremities. They were fewer on the extremities than on the trunk. We could see only the extremity of the tongue, which appeared very dry; the abdomen was soft; no stool since he entered the hospital. (Wine-whey; frictions of the extremities with volatile liniment and cantharides; two blisters to the legs; lavement of marsh-mallow with the addition of a scruple of camphor.)

In the course of the day the patient uttered some unconnected unintelligible words. His bladder was filled with urine; he was sounded twice.

The next day, 28th, his countenance had a cadaverous paleness. Unconscious of everything which passed around him, he seemed to reflect: his features were immoveable. When questioned, he did not answer at first; some minutes after, he seemed to come to himself, and answered slowly, but accurately — he then relapsed into his former state. He lay on his back, with his arms extended along the trunk. The eruption more confluent than the day before. Frequent subsultus; skin a little warm; pulse improved; it was very frequent, very compressible, and intermittent at intervals. The tongue, which he was unable to put out, though desirous to do so, was smooth and dry at its apex, and covered with a blackish coat at its upper surface: one stool. Abdomen still soft; paralysis of the bladder remained. (Same prescription.)

In the night the physical and moral torpor was succeeded by violent delirium, during which the patient sat up, and attempted to escape from the bed.

On the morning of March 1st, he was seen, from time to time, to sit up, look around him with an astonished air, then lie down again; he spoke not a word, nor did he seem to hear those who interrogated him, and appeared to direct his whole attention to some one fixed idea. The tongue was red and moist; no stool; even the lavement had not been discharged; subsultus tendinum diminished. The patient passed no urine for more than twelve hours; yet the bladder was empty. The eruption was in the same state. (Wine-whey; liniment as before; six grains of calomel in two packets; broth.)

March 2d. Convulsive movements of the muscles of the face; great redness of the cheeks succeeded the cadaverous paleness; the eyes haggard, rolled violently in their orbits; the lower jaw was continually moving; the muscles of the extremities were spasmodically contracted; patient uttered some unconnected words; tongue red and moist, lips and teeth rather dark, deglutition painful, abdomen a little tympanitic; two stools; pulse could not be felt, in consequence of the very frequent subsultus; profuse sweat covered the skin; the petechiæ were less numerous and pale. (Application of ice to the head, and at the same time sinapisms to the feet.)

In the course of the day the convulsive movements ceased.

On the 3d, great prostration succeeded the violent agitation of the day before; the petechiæ were livid, face still injected, tongue again dry and brown; the dark coat of the lips and teeth very thick; the respiration, hitherto calm, was very frequent and loud, the expiration was shorter, inspiration more prolonged: pulse now thready, cannot be counted; the skin, which was moist, seemed to the touch as it were covered with a thick layer of oil.

He died in the evening.

Post-mortem, seventeen hours after death. The membrane of the convexity of the hemispheres were very much injected, each lateral ventricle contained from three to four tea-spoonsful of limpid serum; there was a little also at the base of the cranium and in the spinal canal. The white substance of the upper part of the hemispheres was marked with a great number of small red points.

The lungs were perfectly healthy, scarcely engorged; the heart contained a small quantity of liquid black blood.

The stomach was of the ordinary size, the mucous membrane of its splenic portion was studded with a number of small reddish points; the duodenum was pale; the small intestine, in its upper two-thirds, presented a slight rose-coloured tint; the lower third was a livid red colour, and forcibly contracted. The large intestine, through all its extent, was perfectly white. The spleen was remarkably large and soft.

All the symptoms observed in the individuals affected with dothinenterite, are found in the patient whose history has been now given: however, the

post-mortem detected in him no trace of an affection of the intestinal follicles; there was nothing but an erytheme of different points of the gastro-intestinal mucous membrane; and it must be said, this erytheme was not more considerable than that met with in many other cases, where morbid states altogether different have been observed during life, and particularly where the tongue has been neither dry nor black.

With this different alteration of the digestive tube, we meet the very same state of the spleen as in individuals affected with dothinenterite.

The brain and membranes are the seat of considerable injection; but what importance are we to attach to a lesion whose existence is so inconstant in cases where the same functional disturbances have existed?

The individual who forms the subject of this case was distinguished from several of the preceding by his strong make, his well developed muscles, and his embonpoint. As others, however, who presented physiological conditions quite opposite, he presented the signs of great prostration when he entered the hospital; but these signs soon disappeared, and those of great excitement of the nervous system appeared; finally, twenty-four hours before death, the prostration again became the prevailing symptom. It seems then that we can understand better how life terminates than in some other cases above cited, where death suddenly struck the patients in the midst of great agitation, and when they still give proof of their strength by the violence of their cries and by the energy of their muscular movements.

Among the remarkable phenomena of this disease, we shall notice the petechial eruption, which faded away according as the disease proceeded towards a fatal termination; the sweats which took place towards the latter period, and which afforded no relief; the pale and livid tint of the face, and subsequently, its bright red injection; the pulse, which continued very weak, and became more and more frequent; the temperature of the skin, which was never but moderately raised; the tongue, which, dry and brown during the two adynamic stages, became clean and moist during the stage of excitement; in fine, the paralysis of the bladder, and, at a later period, the cessation even of the urinary secretion.

Case 33.—Acute gastritis developed after the use of a large dose of tartar emetic—Tongue dry and black; tympanitic state of the abdomen; state of adynamia.

A man, fifty-two years of age, entered the Hôpital de la Pitié with all the symptoms of well-marked pneumonia. He was first bled; then we commenced with him the use of tartar emetic, of which we gave him six grains the first day and twelve the second day, in three glasses of infusion of orange leaves, to which was added half an ounce of syrup of diacodium. At the time the patient commenced the use of tartar emetic, the digestive passages presented no signs of softening; the tongue was moist and whitish; there was neither thirst, vomiting, or nausea; the abdomen was, in every part, soft and free from pain; scarcely a single stool occurred every two days.

The day after he took six grains of tartar emetic, he presented no symptom connected with the digestive passages; they appeared to us in the same state as the day before; some nausea took place, without vomiting. The signs of pneumonia in the second stage continued in all their intensity.

We now doubled the dose of tartar emetic, as we did in many other cases, without any unpleasant consequences.

On the same day, profuse vomiting came on, and purging also took place.

When we re-visited the patient, the vomiting continued as well as the diarrhœa; the tongue, till then natural, became red and dry. He complained of an acute pain in the epigastrium, which was increased by pressure. The use of tartar emetic was discontinued. However, during the twenty-four hours fol-

lowing, the vomiting continued; it then ceased, not to reappear; but the digestive passages remained affected, and, during the six following days, we witnessed the development of still more serious symptoms.

Thus, the tongue becomes covered with a black coat, the lips and teeth become blackish. The abdomen becomes distended to such a degree that the course of the colon may be traced through the abdominal parietes; four or five stools took place every day. The countenance acquired a leaden hue, and presented an air of most marked stupor. Soon after the patient no longer answers questions; he is in a low muttering delirium; all his features are immoveable; some subsultus tendinum is perceived; the prostration becomes more and more considerable. The pulse acquires constantly increasing frequency, and death takes place twenty days after the invasion of the pneumonia.

Post-mortem. All the left lung, except at its apex, presented a combination of red and grey hepatisation.

The stomach was contracted, and its inner surface lined with a greyish mucus. Beneath this mucus it presented through its entire extent a slate-coloured ground, surmounted by an intensely red dotting; attentive examination soon showed that this dotting resulted from a fine and general injection of the villosities. At the same time that it is thus coloured, the mucous membrane underwent considerable thickening; far from being softened in any of its points, it was every where as if indurated, and had a granulated appearance. The valves of the duodenum were of a bright red colour. The small intestine presented nothing but slight injection of its mucous membrane to the extent of a foot above the ileo-cæcal valve. No follicle was discovered in this intestine. The cæcum participated in the injection of the end of the small intestine. The mucous membrane of the colon presented a number of red bands, between which it was white and of the natural consistence.

The liver, considerably gorged with blood, presented nothing abnormal in other respects.

If Pinel were to give a name to the disease which forms the subject of the case now read, he would have called it *adynamic fever supervening during the course of a pneumonia.* In fact, all the symptoms characteristic of this fever are to be found here. Yet, is it the disturbance of the nervous system which here opens the scene? By no means. It is in the digestive passages that the symptoms evidently commence (redness and dryness of the tongue; profuse evacuations up and down; epigastric pains). Then of these phenomena none remain save the redness of the tongue, and a little diarrhœa; but it is then that the *symptoms called adynamic* appear. All these disturbances succeed the use of the tartar emetic so suddenly, we so plainly perceive the several phenomena set out from the digestive passages, that we can scarcely refuse to consider that the employment of the tartar emetic was the cause of them. To this, no doubt, it will be said that in a thousand other cases nothing similar is observed; we grant it, but we also know that there are particular dispositions which render very dangerous the administration of large doses of tartar emetic, though, under ordinary circumstances, it may be harmless.

A short time since, for instance, we saw a man, forty-eight years of age, attacked with a severe pneumonia, which had arrived at the stage of hepatisation, who was made to take, in divided doses, only six grains of tartar emetic in a six ounce mixture. Before the administration of this medicine had been commenced, the digestive passages appeared to be in a healthy state; the tongue was moist and pale; we ascertained from the previous history that the patient had habitually good digestion. After the first few spoonfuls of the emetic solution, vomiting appeared; hopes were ascertained that tolerance would be established, as happens in many cases; and the medicine was continued; but quite the contrary result took place; the vomiting became more and more frequent; the tongue, previously pale and moist, became red and dry as a bit of parch-

ment; the two following days the patient did not pass a quarter of an hour without the vomiting being renewed; nothing could stop it, and he died from the exhaustion consequent on it. The body was not examined after death.

The case which suggests to us these reflections, presents then a well-marked example of what is called adynamic fever, produced by an acute inflammation of the stomach. Is this typhoid fever? No; it is not in the order and succession of the symptoms of the pyrexia which has, for its anatomical character, inflammation of Peyer's glands; but with respect to the nature of the symptoms is it not a disease of the same family? It is a gastritis, in consequence of which adynamic symptoms become developed.

ARTICLE III.

OBSERVATIONS ON CASES OF DIFFERENT DISEASES ACCOMPANIED WITH TYPHOID SYMPTOMS, WITHOUT APPRECIABLE LESION OF THE DIGESTIVE TUBE.

As often as, after having observed the two morbid groups designated by nosographists under the name of bilious and mucous fever, we have been able to examine the state of the organs in the dead body, we have met lesions in the digestive passages, which have explained at least a part of the symptoms observed during life. Such was not always the case with the individuals who presented to us those different groups of morbid phenomena designated by the names of inflammatory, adynamic, or ataxic fever. In these cases we have very often found lesions of the digestive tube, which the preceding observations induced us to expect; but very often also we have been unable to establish any relation between the intensity of these lesions and the severity of the symptoms; so that, for instance, in the digestive tube of an individual who died during the course of a slight bilious fever, we found an alteration equal in its nature and intensity to that which we detected in the intestine of another individual who died with the very worst symptoms of an ataxo-adynamic fever. The preceding observations equally establish the same thing. If such be the case, is it not reasonable to think that the different lesions which anatomy discovers in the digestive tube of patients who die during the course of a bad fever, are not the sole cause of it? Should it not be laid down that the adynamic or ataxic phenomena depend much less, in these cases, solely on the nature or intensity of the intestinal lesion, than on the disposition in which this lesion, slight or severe, finds the innervation? If now these different phenomena called adynamic or ataxic, are observed in cases where, on opening the bodies, we find the digestive tube healthy, and other organs the seat of lesion, will not the proposition now stated be found singularly confirmed by such facts, and shall we not be warranted in saying that the symptoms called adynamic or ataxic are the result of a disturbance in the action of the nervous centres, a disturbance sometimes primary, and which may then exist with a lesion appreciable on opening the body; but most frequently consecutive, and then developed in consequence of the lesion of some organ, of the digestive tube, as of any other? The following cases go to prove the correctness of this mode of viewing the subject: —

These cases constitute two series: in some the typhoid symptoms coincide with lesions of different organs, which may be considered as their origin; these lesions are at least the occasion of their development. In the other cases these lesions themselves no longer exist, and it is to a primary but still indeterminate alteration of the nervous centres and of the blood, that the symptoms should be referred.

SECTION I.

TYPHOID SYMPTOMS, DEVELOPED IN CONSEQUENCE OF DIFFERENT LESIONS APPRECIABLE BY ANATOMY.

We have selected the following from among several other analogous cases, to show that diseases, the most different from each other in their seat, may equally have as their attendants, or termination, symptoms, always the same, which constitute the ataxo-adynamic or typhoid state. Thus we shall see these symptoms developed in consequence of an erysipelas, of a phlegmon, of different diseases of the urinary passages, of pneumonia, hepatitis, variola, measles, phlebitis, metritis, etc. In these cases, we again repeat it, we shall no longer find this same pyrexia, which accompanies follicular enteritis; it will not then be the typhoid fever of MM. Chomel and Louis; but it will always be the symptoms of this fever differently combined.

Case 34.—Erysipelas of the face and trunk—Dark appearance of the tongue and mouth—Delirium—Prostration.

A trader in umbrellas, forty-seven years of age, was attacked with erysipelas of the face, when he entered the Maison de Santé in the January of 1832. He answered questions with difficulty, and raved from time to time: the tongue, covered with a yellow coat, was at the same time very dry; pulse very frequent and skin very hot. We were not able to obtain any information regarding the previous history: thirty or forty hours after the patient's admission, desquamation commenced to take place in the face; but at the same time a new erysipelas appeared on the neck, and it gradually extended to the chest, back, abdomen, and to the commencement of the thighs. During ten days the erysipelas ceased not to extend. During this time the state of the patient became more and more alarming; complete delirium set in; at first this delirium was accompanied with great excitement; the patient became very restless and very noisy; he then fell into a state of great depression, and died comatose. From his admission to his death the tongue became drier and drier; at the time the agitation and restlessness ceased, it was covered, as also the teeth and lips, with black crusts; the abdomen was at no time tympanitic; nothing particular in the stools; the pulse constantly remained very frequent, and became very small and weak; during the last forty hours of life we reckoned it to be 146. Up to the time of death the trunk presented traces of erysipelas, which had successively traversed every point of it.

Post-mortem. The meninges were pale, traversed with some veins half filled with blood. Lungs engorged posteriorly; healthy in every other part; and the arteries and veins were white on their inner surface.

The mucous membrane of the stomach a little mamillated towards the pylorus, presented towards its posterior surface, near the cardia, a very light red dotting; everywhere else it was perfectly white, and was neither softened nor indurated. The duodenum presented a greyish tint. In the jejunum and ileum nothing was observed but a number of veins filled with blood, which passed beneath the mucous membrane, which was pale through its entire extent, excepting some convolutions, which occupied a descending position. There was not a follicle apparent throughout all the small intestine.

The cæcum was a little injected; the rest of the large intestine was white.

The redness of the skin of the back, abdomen and upper part of the thighs was gone; here and there we observed on this skin some large phlyctenæ filled with reddish serum.

There can be no doubt that the erysipelas was, in this case, the occasional cause, or, if you will have it, the starting point of the ataxo-adynamic symptoms in which the patient died. The vast extent of skin attacked by inflammation, was sufficient, without any other organ participating in the disease, to occasion serious disturbance to the nervous system. Thus, without any alteration of the digestive passages, the tongue may become dry and black; without this alteration, typhoid symptoms may be developed. We have been careful to note that the vessels were found in the most healthy state, an important circumstance, because it might be supposed that the erysipelas had produced these symptoms only after being complicated with phlebitis.

Case 35.—Phlegmon terminating in gangrene around scarifications made on an infiltrated limb; adynamic fever; tongue and teeth dark-coloured; fæces passed involuntarily—Digestive tube healthy—Organic affection of the heart.

A man, fifty-three years of age, presented all the signs of dropsy from organic affection of the heart, when he was submitted to our inspection. A few days after his admission, the enormous size of the lower extremities induced M. Lerminier to scarify them; the left extremity was soon emptied, but not so with the right; the thigh and leg of this side soon presented, around the points of the skin where the incisions had been made, a livid red colour, which soon became black; at the same time there was considerable tumefaction of the limb, general redness of the skin of the thigh, acute pain on the least pressure (emollient fomentations). During the three or four first days the general state of the patient remained good; but after this, and according as the phlegmon went on, the features underwent a rapid alteration; a very well-marked expression of sinking was observable on the face; the mouth was filled with a viscid, clammy mucus, of a dirty grey colour; then the tongue became brown, and dry as a bit of parchment; black crusts covered the teeth; the intellects became disturbed; the patient ceased to answer questions; he was continually muttering some unintelligible words; and he died in this state twelve or thirteen days after the scarification had been made.

Post-mortem, seventeen hours after death. Considerable serous engorgement of both lungs; a clot of some consistence, and of a yellowish white colour, in the heart, which was aneurismatic, its tissue being rather healthy, and the inner surface being pale. A little coagulated blood in the large arterial trunks, which presented no unusual colouring, nor did the veins. A considerable quantity of pus infiltrated the cellular tissue of the right lower extremity.

In this case the adynamic symptoms, the dryness of the tongue, the dirty colour of the teeth, and the delirium came on in consequence of the phlegmon. We have adynamic fever without the digestive tube presenting any appreciable lesion after death.

Case 36.—Inflammation of one of the kidneys and of the bladder—Symptoms of adynamic fever—Tongue dry and black; teeth dark coloured—Digestive tube healthy—Spleen large and soft.

A man, about sixty years old, was brought to the Charité in the following state; face of a leaden hue; will not answer questions; constant muttering; lips, teeth and tongue, covered with a dark coat; some petechiæ on the abdomen, which was soft, and seems free from pain; stools natural; pulse small, very frequent; skin not hot; subsultus tendinum. The two following days the individual remained nearly in the same state. He died on the third day.

Post-mortem. Brain healthy; lungs slightly engorged; heart empty; nothing remarkable observed in the stomach; the right kidney of a deep red colour, and its tissue very friable; the calices, which were considerably dilated, were filled with purulent matter, which was also found in the ureter of this side; the

bladder, which was contracted on itself, presented an unusual thickness of the cellular tissue interposed between the muscular and mucous coat; in some points this cellular tissue had a schirrous appearance; the entire mucous membrane of the bladder was of a cherry red colour; the spleen very large and very soft.

In this case we find the digestive tube as healthy as in the preceding: yet the adynamic fever was here well marked. It commenced in an affection of the urinary passages. Those who have seen a certain number of cases of chronic disease of the urinary passages, know that it is not uncommon to see life terminate in such patients in the midst of symptoms of adynamic fever; their strength is lost, their intellects become impaired, their tongue dries, and they die.

Case 37.—Old attack of apoplexy—On entering the hospital, general debility; soon after there was intestinal hemorrhage; then adynamic symptoms; tongue dry and black—Death—Abscess in the prostate; another abscess in the thoracic muscles—Digestive tube presenting no other lesions except a little redness in the great cul-de-sac of the stomach—An old hemorrhagic focus in a cerebral hemisphere.

A coppersmith, fifty years of age, had an attack of apoplexy. He lost consciousness for several hours; when he came to himself, his extremities on the right side were paralysed; the right commissure of the lips was drawn down; the tongue inclined to the right. He was bled profusely, and covered with sinapisms and blisters. The paralysis terminated at the end of about five weeks.

When he entered the hospital, he complained only of general debility. We observed him gradually to fall into that state of decay which the ancients designated by the name of *cachexy*. His face was very pale; he was so weak that he could not leave the bed; his movements were free, his intellect intact. At the commencement of March he voided, without pain or tenesmus, a considerable quantity of blood by stool; he then had a slight purging, which yielded to rice ptisan. Fever became developed. He began to feel pain at the lower part of the right side of the chest.

March 12th, tongue dry, red at the centre; thirst; abdomen free from pain; pulse frequent and weak; prostration.

The same state on the two following days. Constipation. (Decoction of polygala.)

On the 15th, tongue dry and black; some thirst; no stool; intellects very distinct; speech free; pulse frequent, rather resisting; continuance of the pain of side.

On the 16th, features very much altered. Died the next day. Intellect perfect to the last moment.

Post-mortem. Effusion of a considerable quantity of limpid serum into the subarachnoid cellular tissue. Ventricles filled with serum. Externally, and on the level of the left corpus striatum, there existed an oblong cavity, about one inch in length and two in depth, and from three to four lines in width, filled with a small quantity of a chocolate-coloured liquid, lined by a thin smooth membrane, resembling a serous membrane. Cerebellum softer than usual. From the right lung, when cut into, an enormous quantity of colourless frothy serum flowed (œdema): there was less of it in the left. Considerable hypertrophy of the parietes of the left ventricle of the heart. The inner surface of the stomach was white through its entire extent, except towards the great cul-de-sac, to the extent of three fingers' breadth in every way. Here there was considerable redness, which resided in the mucous membrane, which was a little softened, but still, however, capable of being raised in the form of membrane. The inner surface of the rest of the intestine, from the duodenum to the rectum, was very white, except in some scattered points, where there was slight sub-mucous injection.

A small purulent deposit was found in the substance of the thoracic muscles of the right side; thence the pain felt at this part.

We do not think that the state of the digestive tube can here account for the symptoms observed during life. Thus, again, there was in this case adynamic fever, with dryness and blackness of the tongue, with an origin elsewhere than in the digestive passages.

Shall we remark the hypertrophy of the left ventricle of the heart, by which the resistance which the pulse presented up to the last moments may be explained, a resistance which seemed to disagree with the aggregate of the other symptoms? Shall we again remark the non-cicatrisation of the old apoplectic focus, though every species of paralysis had for a long time disappeared.

Case 38.—Red softening of the liver; no other lesion—Adynamic fever.

An old man, nearly eighty years of age, entered the Pitié in the following state: face pale, with a yellowish tint around the lips and alæ nasi; a marked air of stupor; such debility that the patient cannot remain sitting up for a few seconds; intellect very much impaired. The tongue protruded from the mouth with difficulty and tremor; a yellow crust covers its centre, and its edges, as well as its apex, adhere to the palate and teeth by a thick and viscid mucus. Abdomen soft and free from pain; stools but few. The upper extremities were affected with a constant tremor, which at first prevents the pulse from being felt; when it is felt, it is found to be small, irregular, and very frequent. Skin hot and dry; movements of respiration separated by very unequal intervals, and it was observed to be accelerated and retarded alternately in a very remarkable manner.

All that we could learn of his previous history was, that, for the last fifteen days, this old man kept the bed; that first he lost his appetite and strength, and that gradually he fell into the state now described.

On the following days the prostration increased more and more; the patient fell into a sort of dull delirium, which rendered him completely indifferent to all external impressions; the tongue, teeth, and lips, became black; the pulse, without losing any of its frequency, became thready; the skin became cold; the breathing was embarrassed: and he died in about twenty days after he began to keep his bed.

Post-mortem. Slight serous infiltration of the subarachnoid cellular tissue of the convexity of the cerebral hemispheres. Meninges pale; about half a spoonful of limpid serum on each lateral ventricle. Substance of the brain equally pale as the membranes.

Old adhesions of the pleuræ costalis and pulmonalis of the right side; considerable rarefaction of the pulmonary tissue; engorgement of the two lungs at their posterior part. Towards the summit of the left lung several burst, or dilated vesicles, formed, as it were, large ampullæ, which passed some lines beyond the exterior surface of the lung; immediately at the summit, they surrounded, to the number of five or six, a depression resembling a cicatrix. In some points of the two lungs the bronchi were found considerably dilated. The entire pulmonary parenchyma was loaded with a great quantity of black colouring matter.

The cavities of the heart were filled with coagulated blood. Considerable ossification of one of the aortic valves. The aorta also contained several plates of bone.

The stomach was filled with a greyish liquid which exhaled an acrid odour. Its mucous membrane was everywhere pale; it was very thin towards the pylorus. The villi of the first curvature of the duodenum were coloured black.

The remainder of the small intestine was pale. No trace of follicles, whether isolated or aggregated, were discovered in it. The cæcum was a little injected.

The liver, which was of the ordinary size, presented a uniformly red colour, but, what was particularly remarkable in it, was the extreme friability of its tissue, which crumbled under the finger with extreme facility. A black and pitchy bile distended the gall-bladder. Spleen somewhat large and very soft.

This case furnishes matter for the same reflection as the preceding; it is always typhoid symptoms which are developed, without any concomitant lesion of the digestive passages. The liver was here the primary source whence the symptoms were derived; at least, it was in this organ only that any alteration was discovered.

Case 39.—Measles—On the second day of the eruption violent delirium, followed by a state of coma—No appreciable lesion in any of the organs.

A man, about twenty-eight years old, of strong make, entered the Pitié with intense fever, accompanied with a very violent cough and coryza. Face red; eyes injected and watery; tongue of a bright vermilion colour; abdomen everywhere soft and free from pain; no diarrhœa. Percussion of the chest gave but negative information; auscultation detected a little mucous râle in different points. This man had a cough for the last eight days, but only since the last two days had he any fever, and kept his bed. We bled him to sixteen ounces. Blood not buffed.

During the twenty-four hours following the patient remained in the same state; then his skin became covered with an eruption, having all the characters of the best marked measles. At first everything seemed to go on very well; then thirty-six or forty hours after the rubeolar eruption first began to appear, the intellect became suddenly disturbed, and furious delirium soon set in. We had to put the straight waistcoat on him. He was very much agitated, vociferated incessantly, and railed at every person who approached him. Frothy saliva constantly flowed from his mouth; he greedily swallowed whatever liquids were presented to him, and constantly importuned for something to drink; tongue, however, neither red nor dry. From time to time the trunk was suddenly raised, as if by a tetanic shock. Continued subsultus was perceived, which prevented us from clearly ascertaining the character of the pulse. We, however, satisfied ourselves that it was very frequent and very full. The eruption was still very marked on the face and chest; it had disappeared on the extremities. Forty leeches were applied to the neck, and, whilst the blood was flowing, the lower extremities were covered with sinapisms.

For three days the same state continued; a second application of leeches was made with as little success as the first. After this the scene suddenly changed; the violent excitement which the patient presented up to this period was all at once succeeded by extreme prostration; profound coma soon came on, in which the patient died.

Post-mortem. On the inner surface of the stomach we observed some bands extending from the cardia to the pylorus; the free edge of some presented a red colour, which partly disappeared, and became changed into a light red narrow dotted streak, when these bands were effaced by traction. Some partial injections observed in the intestines. Nothing remarkable in any of the other organs.

If there be a case where the alterations discovered by our senses do not appear sufficient to explain the disease, and to account for death, that is unquestionably the case now read. In most of the cases wherein measles is complicated with such serious symptoms, we find on the dead body alterations which we rationally consider to be the cause of them. Here all the organs were healthy. Might it not, however, be presumed that traces of inflammation would be found

in these nervous centres where the principal and most important of the functional disturbances resided? yet they were as exempt from the lesion as the other parts. What share had the cutaneous eruption in this case? Certainly none other than that of exciting to action the predisposition to the development of nervous symptoms in consequence of the general disturbance of the system. Here, then, as in a thousand other cases, that which appears to us is but part of that which is, and that which we do not see is precisely that which is most important.

Case 40.—Confluent small-pox—On the ninth day of the eruption typhoid symptoms; tongue black; petechial spots between the pustules: delirium.

A young servant girl, eighteen years old, went frequently, seven days before she fell ill, into the bedroom of a person who had small-pox. She had not been vaccinated. She entered the Pitié on the 9th of August. She first complained, on the 30th of July, of general sickness and anorexia. August 1st, she complained of dizziness of the head, nausea, and she vomited. On August 2d, the same symptoms; pains in the region of the kidneys; she kept her bed. August 3d, no more vomiting nor nausea, but was very weak, and did not leave the bed. August 4th, in the morning, the face was observed to be covered with pustules (*boutons*). The eruption went on developing itself up to the 10th of August, the time we examined the patient. This was the seventh day, when she was covered with the eruption.

The entire skin was covered with numerous pustules, which constituted everywhere a most confluent eruption. These pustules were white, flattened, and several of them umbilicated. Between them the skin was of a bright red colour on the face and upper extremities. She complained of no other pain than a general smarting of the skin; the pain in the region of the kidneys was gone since August 3d. No headach. The tongue was covered with a yellowish coat; it was moist, and without redness on its edges; some pustules were observed on it. She complained of a bad taste in the mouth; profuse salivation; the palatine arch and velum palati were covered with pustules. Since the first day of the eruption the patient complained of the throat; voice completely extinct; she had no cough; was tormented with great thirst; abdomen soft and free from pain; no stool for the last three days; passage of urine accompanied with great smarting; pulse 120; twenty-eight respirations per minute. (Infusion of mallow flowers; mucilaginous potion; diet.)

On the 11th, same state. The skin of the chest was intensely red in the interval between the pustules; these ran one into the other on the thighs, forming as it were large ampullæ filled with a whitish liquid. There was profuse salivation.

Up to this, notwithstanding the confluence of the eruption, every thing went on very well. But, August 12th, the ninth day of the eruption, some delirium supervened. On this day it still appeared only at intervals; the patient appeared very much debilitated.

August 13th, tenth day of the eruption, the delirium was constant; some blood escaped from the opened pustules, and the face was covered with a black mask. Breathing very much hurried; pulse 140. The tongue was dry, and covered with black crusts. The constipation still continued. The legs were covered with large violet spots, the only point of the body where intervals were observable between the pustules. (Continuation of diluent drinks.)

The delirium continued through the day; the general prostration increased; yet in the evening, in the midst of her delirium, the patient left her bed, and walked for a little about the ward. She died on the 14th, the eleventh day of the eruption, at three o'clock in the morning.

Post-mortem, twenty-nine hours after death. The tongue, palatine arch,

velum palati, and pharynx, were covered with a thick white coat. The mucous membrane beneath it was but slightly red; inner surface of the stomach lined by a yellowish mucus; beneath it the mucous membrane was found of a greyish white colour, and mamillated through nearly its entire extent; slight injection in some points of the great curvature. In no part was it softened. The mucous membrane of the duodenum was greyish like that of the stomach. Some parts of the jejunum and ileum were of a livid red colour, the parts particularly in the cavity of the pelvis. Everywhere else the intestinal mucous membrane was white. In the two last feet of the ileum a considerable number of Brunner's follicles were found to be white, and not at all prominent: in the ileum also were found five of Peyer's patches, forming no projection above the level of the mucous membrane, which were recognisable only by their black points, and the greyer colour of the intestine where they were found. The mucous membrane of the large intestine was everywhere white and of good consistence; no follicles observable in it.

The liver, which was of a uniform pale red colour, was rather friable; the gall-bladder contained a black thick bile.

Both lungs were very much engorged posteriorly, and in some points, always posteriorly, they contained no air. The mucous membrane of the larynx and trachea was intensely red. Some reddish serum was effused into the pericardium. The heart, the tissue of which was firm, contained blood partly liquid and partly coagulated.

The slight alterations found in this individual existed all, with the exception of the pulmonary engorgement, at the time the small-pox was proceeding, without being complicated with typhoid symptoms. What was the cause of these? We think that, if we had had the opportunity of examining the organs the day before that on which the delirium set in, we should have found them in the same state as that in which we found them some days later. What, then, was the new morbid element which intervened to stamp, all at once, so unfavourable a character on the disease? Was it merely a sympathetic influence exercised by the inflamed skin on the nervous centres? Such may be supposed; it cannot be proved. Was it the variolic virus, which, after having exhausted its action on the skin, then directed its deleterious influence towards the two grand movers of life, the blood and nervous system? This is but an hypothesis, which, however, might have more than one analogy in its favour. Did the inflammation of the skin produce a phlebitis consecutively? But, with respect to this phlebitis, which may happen in certain cases, we in vain sought for it in this, and we also satisfied ourselvest hat it had not attacked the lymphatic system. Lastly, were these typhoid symptoms, so suddenly developed, the result of a purulent absorption? Nothing here proves it; whilst, on the contrary, it is to be presumed that this absorption took place in the following case: —

Case 41.—Confluent small-pox—On the ninth day, sudden sinking of the pustules; death rapidly supervening.

A man, about thirty years of age, entered the Pitié with confluent small-pox. Up to the ninth day of the eruption everything went on very favourably; no particular symptom presented itself, only the tongue was very much swollen.

On the ninth day, the pustules, which, the day before, were fully suppurated, became suddenly depressed; *they became emptied without being opened;* between them the skin was pale as the skin of a corpse. In the course of the day some delirium supervened; at night the patient fell into a state of extreme prostration; the pulse was no longer felt. He died in the course of the night.

Post-mortem, thirty hours after death (6th of May, low temperature).

The examination of the pustules showed that they were all empty, with the exception of two or three situated on the back of the foot; the epidermis, as it

were puckered and wrinkled, was in immediate contact with the cutis. In the point where the pustules were, this cutis was red and a little swollen; everywhere else it was pale.

The encephalon and its appendages presented no appreciable alteration.

The inner surface of the larynx and trachea was red; the lungs healthy, slightly engorged posteriorly; one of them contained a small cretaceous tubercle at its apex; the blood contained in the heart and aorta was liquid; the inner surface of the aorta was red; nothing remarkable in the vascular apparatus.

The pharynx and œsophagus healthy; the inner surface of the stomach presented, through its entire extent, as far as the great cul-de-sac, considerable mamillation; it was everywhere of a greyish white, without the least trace of injection; the small intestine generally pale; its inner surface was studded with a very great number of Brunner's follicles, which were not more coloured than the mucous membrane on which they were raised; towards the end of the ileum we also found several of Peyer's patches, which had a greyish tint, but which did not project above the level of the mucous membrane; the large intestine was white, without any apparent follicles; the spleen was one-third larger than ordinary; it was pale and very soft.

The most prominent phenomenon presented in this case was the sudden depression of all these pustules, which became all at once emptied of the liquid which filled them, without having been previously torn. They did not therefore discharge externally the pus secreted by the cutis; it was the latter which reabsorbed it; and must it not then have passed into the torrent of the circulation? We did not, to be sure, find this pus either in the blood or elsewhere, but the reason is, because being intimately mingled with it, and circulating with it molecule by molecule, it had not yet had time to separate from the blood, when death supervened. Death struck the patient with frightful rapidity; the depression of the pustules was followed by the development of terrible symptoms, similar to those of poisoning by some septic agent, and very few hours elapsed between the appearance of these symptoms and death.

Case 42.—Confluent small-pox—From the ninth to the fourteenth day of the eruption, typhoid symptoms became gradually developed—Death on the fourteenth day—Numerous abscesses in the lung and in the cellular tissue of the deep region of the neck—Intense redness of the mucous membrane of the digestive passages.

A man, twenty-one years of age, entered the Pitié 18th of August. He had fallen sick on the 14th. On the 13th he had gone to bed very well, and slept well. On the 14th, when he awoke, he felt an acute pain in the kidneys; took to his bed; still ate; did not vomit. On the morning of the 16th the eruption appeared on the face, and was increased on the 17th. On the 18th, the day when we first saw him, the eruption was general, confluent, and developed, as it should be on the third day. The pain of the kidneys disappeared since the 16th; tongue white and moist; the palatine vault and velum palati were covered with pustules; no salivation; some pain in the throat since the last few hours; no thirst; pulse 64. (Mucilaginous drinks; diet.)

August 19th, the fourth day of the eruption, some pustules covered the tongue; its appearance not changed; a little delirium at night; pulse now 72; respirations 16 *per minute.*

August 20th, fifth day of the eruption, he complained much of his throat; voice entirely gone; tongue covered with pustules; only one stool; calmer at night than on the preceding; frequency of pulse a little increased, being now 76; respirations 24.

During the four days following, the intellect became disturbed from time to time, and in a moment of delirium he tore the pustules from his face.

August 25th, tenth day of the eruption, the delirium became more continued;

extremities exhibited slight convulsive movements; they, as also the trunk, were covered with pustules filled with pus; the entire face covered with a black mask; eyes easily opened; tongue dry as a bit of parchment; voice still entirely extinct; pulse 100.

Up to the 29th the delirium still continued, as also the occasional involuntary movements of the limbs; the tongue now covered with black crusts. On the 29th he died at nine o'clock at night, this being the 14th day of the eruption.

Post-mortem. Pia mater infiltrated with a little serum; a very small quantity of it in the ventricles. The muscles of the neck were separated, and, as it were, dissected one from the other by means of pus, which infiltrated the cellular tissue placed between their fasciculi. Some pus was also found effused between the œsophagus and vertebral column.

The stomach was dilated with gases. Internally there were observed bright red dots, which were all seated in the mucous membrane, and particularly in the villi of this membrane. The inner surface of all the small intestine, and that of the upper half of the large intestine, was of an intensely red colour. Some solitary follicles, somewhat numerous, but small, were found towards the termination of the ileum. Spleen enlarged in size, and very soft.

The mucous membrane of the larynx was very red.

Both lungs were very much engorged posteriorly. The lower lobe of the left lung had a sieve-like appearance, in consequence of a multitude of small abscesses. Every incision made by the scalpel fell on several of the abscesses, so numerous were they. Some were surrounded by a perfectly healthy parenchyma; around several others the pulmonary tissue was hepatised. In a certain number of points there were found, instead of abscesses, small greyish masses, still hard, which were evidently portions of the pulmonary tissue infiltrated with pus. The upper lobe of the left lung contained nothing similar. In the right lung there was discovered only a single point where the tissue of this organ contained a little pus, which was still found in the state of infiltration.

The bronchial ganglions were somewhat enlarged, but they presented nothing remarkable, except that some of them contained a little chalky matter.

Some lemon-coloured serum was found in the pericardium.

In the preceding case the serious symptoms, which were suddenly developed at the same time that the pustules became depressed, were a reason for our admitting purulent absorption; while, in this case, none of the lesions found on the dead body could account for these symptoms.

Here the pustules remained full up to the time of death, except those on the face, which were prematurely torn. We still observe the same symptoms, but more slowly developed. How shall we explain them? There were here two species of lesions; on the one hand, we discover a well-marked gastro-enterite, and it alone may, no doubt, have had great influence on the production of the typhoid symptoms; but, on the other hand, we find in the cellular tissue of the neck, and particularly in the lung, numerous abscesses, altogether resembling those found in the same parts after capital operations, and which have been hitherto accounted for either by an absorption of pus, or by a phlebitis. Here this latter did not exist.

Wherefore, we think that, in this patient, the typhoid symptoms were owing, at one and the same time, to the absorption of pus and the gastro-intestinal inflammation.

We shall now cite another case, in which the same typhoid symptoms still appear, without there having been any other lesion than an intense inflammation of the pulmonary parenchyma.

Case 43.—Confluent small-pox—Typhoid symptoms developed on the twelfth day of the eruption—Death on the sixteenth day—Pneumonia.

A man, twenty-one years of age, ran through the different stages of confluent small-pox, without any unpleasant circumstances up to the twelfth day of the eruption. Then the pustules of the face became changed into yellowish crusts; those of the extremities were still full of pus. All at once the frequency of the pulse increased; the tongue became dry, the intellects disturbed, and at the same time the breathing was accelerated; auscultation detected some crepitous râle towards the base of the right lung; there was scarcely any cough, no expectoration, and no pain of side. He was immediately bled to the amount of sixteen ounces; still the symptoms became worse; on the one hand, without the respiration appearing to be more impeded, the crepitous râle was replaced by bronchial respiration; and, on the other hand, the dryness of the tongue, the delirium, stupor, and the prostration, went on increasing. All this continued for fifteen days, then the patient died. From the moment these new symptoms set in, the eruption underwent a remarkable change. Some of the pustules became depressed without having been previously torn; others, in much greater number, were filled with blood.

Post-mortem. On the inner surface of the larynx, between the two anterior extremities of the chordæ vocales, there was found a small ulcer, which seemed to be the probable result of the laceration of a pustule; slight redness of the mucous membrane of this organ; this redness more intense in the trachea and bronchi. The inferior lobe of the right lung in the state of red hepatisation. The mucous membrane of the stomach presented a multitude of intensely red points. The small intestine in general but slightly injected; we observed on its lower fourth about fifteen of Peyer's patches, of a greyish white colour, projecting a little above the mucous membrane. Between these patches were found several of Brunner's follicles, of a white colour, and small in size. Spleen very large and very soft.

The pneumonia, which complicated the variola here, was evidently the commencement of the typhoid symptoms; they began and increased along with it. The change which the pustules underwent, from the moment these symptoms appeared, we consider very remarkable. In this case, as in all the others, the spleen was found large and soft. In the midst of organic disturbances so varied, which we observed to coincide with the typhoid state, this alteration of the spleen is the most constant lesion. It is, however, sometimes wanting.

Case 44.—Puerperal metritis, with partial peritonitis—Ataxo-adynamic symptoms.

A woman, twenty-three years of age, was safely delivered of her first child in the Maternité. A few days after her delivery she left the house; but she had scarcely reached her own home when she was seized with a great shivering, which was succeeded by a burning heat, and at the same time she felt in the hypogastrium acute pains, which were increased by any motion whatever. Twenty leeches were immediately applied over the abdomen; still the symptoms did not diminish, and, three days after their invasion, this woman was admitted into the Pitié.

The pain about the hypogastrium was then diminished; she scarcely felt it when she remained lying on her back; in this position she complained particularly of suffering very much in the region of the kidneys. Gentle pressure on the abdomen, from the umbilicus to the pubis, gave but little pain; when extended to the iliac regions, a more acute pain was produced. We readily felt in the hypogastrium a globular body, not very moveable, which rose full three fingers' breadth above the pubis. The form of this body, its position, and its relations, at once showed that it was the uterus which, after the accouchement, had

attained an unusual size. There was a reddish white discharge at the vagina; on introducing the finger it was ascertained that the neck of the uterus was swollen, softish, hot, and very painful to the touch; its orifice was still sufficiently open for the extremity of the index finger to be able to penetrate into it a considerable way. The febrile disturbance was intense; the pulse, which was easily compressed, was up to 132, and the skin was hot and dry; respirations twenty-eight per minute. The tongue, covered with a yellowish coat, was clammy to the touch. She complained of great thirst; she had nausea the day before, which was now gone; she had had no stool since her accouchement. She also felt general uneasiness and inexpressible anxiety, though her pains were not acute. She constantly stated that she had not the command of her ideas; that she knew not what was to become of her; she found herself extremely weak: countenance was pale, and her features expressed great depression.

It seemed evident to us that this woman had acute metritis. This affection alarmed us less than the state of the nervous system, and the expression of her countenance. It appeared that typhoid symptoms were about to manifest themselves; perhaps it was a case of uterine phlebitis; perhaps, too, pus was already circulating with the blood. We put these questions to ourselves, and, considering the paleness of her face, her sunken features, the well-marked nervous anxiety, the weak and compressible pulse, we doubted the propriety of bloodletting. Still there was intense inflammation of the uterus; this inflammation was recent, and it was natural to think that, by combating the local affection, and removing it we might give the nervous system more chance of returning to a better state. We ventured, therefore, to apply thirty leeches over the hypogastrium; we advised emollient fomentations to be kept continually over the abdomen; and we ordered a simple lavement of marshmallow to relieve the constipation which existed. Internally, gum water was the only drink prescribed.

The leech-bites bled very profusely. On the next day the patient was far from being improved. The tongue was now completely dry; the countenance indicated the most profound stupor; it was of a most remarkable leaden hue. Her ideas were no longer clear; she uttered from time to time words without meaning, if we asked her how she found herself, she replied that she was very well — a fatal sign of a profound perversion of sensibility. Her upper extremities were agitated by a constant tremor; the skin retained some heat; and the pulse, smaller than on the preceding day, was up to 140. The respiration was remarkable for its great irregularity, being sometimes very much accelerated, sometimes singularly slow. Amidst these great disturbances of innervation, the state of the uterus did not seem to undergo any change; the abdomen might be rubbed without the patient evincing any pain.

Thus the typhoid state, which we doubted the day before, was now strikingly marked. Should we here be content with a merely expectant mode of treatment? We did not think so. We thought that the great indication in this case was to recruit the strength, and we prescribed a mixture, consisting of thirty drops of sulphuric ether and two drachms of dry extract of quinquina; we gave at the same time a lavement, in which we dissolved twenty-five grains of sulphate of quinine (the entire to be given in two demi-lavements); we also ordered cataplasms of linseed meal, very hot, and sprinkled over with some flour of mustard, to be applied to the lower extremities. We ordered, for ordinary drink, some vinous lemonade.

This new mode of treatment at first seemed to be followed by some success; the day after, in fact, the state of sinking seemed to be diminished, the tongue was not so dry, and the intellect seemed to be improved. But this apparent amendment was but of short duration. During the four following days, though the same treatment was continued, the adynamic state progressed; the tongue and teeth were covered with black crusts; she raved continually. Totally

unconscious of everything passing around her, she uttered, from time to time, some unintelligible words. She soon fell into a profound coma, in which she died.

Post-mortem. — Nothing particular observed in the brain or its appendages. The thoracic organs exhibited nothing worth noticing, except considerable engorgement of both lungs posteriorly. Some blood, partly liquid, and partly coagulated, was contained in the cavities of the heart. The stomach presented, to the left of its cardiac orifice, over a space about as large as a five franc piece, a slightly red dotted appearance. Everywhere else the gastric mucous membrane was pale, and of natural consistence. The duodenum was of a slate-coloured tint. Over the rest of the intestine we found nothing but some arborisations scattered here and there, which interfered not with the transparence of the mucous membrane, and which were beneath it. The spleen was one-third larger than natural, and very soft; a small stream of water poured on it was sufficient to reduce it quickly to its fibrous parenchyma. The uterus went about three fingers' breadth above the upper edge of the pubis. Its cavity, which was larger than natural, was filled with purulent mucus, white in some points, reddish in others. The membrane lining the parietes of this cavity was intensely red, and covered in some places with a whitish layer. Even the tissue of the uterus, which is usually so hard, was become so friable, as to break under the pressure of the finger. This tissue was everywhere of a livid red colour; we have nowhere met the least appearance of pus. The right ovary was larger, redder, and more friable than the left. It contained no pus. A sero-purulent liquid was effused into the cavity of the pelvis, and both sides of the uterus were covered with whitish false membranes. No lesion of either the arteries, veins, lymphatics, or their glands.

Here, again, is a case where the typhoid symptoms have an entirely different commencement from that which they had in the preceding cases: here it is the uterus, whose inflammation carries into the nervous system that very peculiar disturbance which produces the ataxo-adynamic state. The particular condition in which the woman was during and after her accouchement, particularly in her suffering both mental and bodily distress, appears to us eminently calculated to favour the development of this state. This case also proves that the existence of uterine phlebitis is not indispensable, as some persons suppose, for the production of the typhoid state in women attacked with puerperal metritis. We can even say that, in a considerable number of cases of this kind which we observed at the Maternité, there were very few in whom we detected the existence of phlebitis. The following, however, is a case in which the inflammation of the veins had very probably a considerable share in the production of the typhoid symptoms.

Case 45.—Gangrene of the lower lip; pus in the veins—Abscess in the lungs—Soft state of the spleen—Adynamic symptoms; tongue dry and black.

A woman, thirty-nine years old, was brought to the Charité on the evening of the 16th of August. She presented a gangrenous eschar of the lower lip. The following is the history of the case, both as obtained from herself, as also from MM. Piédagnel and Merat, who attended her before her admission into the hospital.

This woman, who was in very good health, and who even suckled a child for the last eighteen months, went the preceding Sunday to walk in the Champs Elysées, on which occasion she was stung in the lower lip by a fly. She stated this fact positively, but she could not state what sort of fly stung her. The lip became swollen up on Tuesday, when M. Piédagnel was called in. He ordered fomentations and leeches. He himself observed on the lower lip a white triangular mark, similar to a leech-bite. The swelling increased: M. Merat was

called in on Friday. He recommended cauterisation with caustic potass, which was done. In the night some delirium manifested itself. At last she was removed to the Charité. There, the swelling not ceasing to gain ground, the pulse being rapid and weak, we determined on another cauterisation with caustic potass, having first divided the eschar. (Decoction of quinquina.)

On the 17th the eschar on the lower lip was about an inch broad, and was raised with pus: an indolent swelling of the two cheeks, particularly on the right side of the chin, neck, and even the upper part of the chest. A purple-red colour, which disappeared on pressure; no inflammatory circle marking a separation of the gangrene, the swelling was rather œdematous than tense. Debility, anxiety, pulse frequent, and had but little strength. More delirium, no headach; intense thirst, no heat of skin; abdomen soft, and free from pain; a little diarrhœa; sonorousness equal on both sides of the chest, but a mucous râle on the left, a difficulty of expectorating by reason of the viscidity of the sputa. (Thirty leeches to the neck, vinous lemonade; three semi-lavements, with the decoction of quinquina and six drachms (*gros*) of camphor.)

At noon the blood flowed profusely. Pulse quicker and smaller than in the morning; great anxiety; swelling increased. In the evening she refused to drink; she fell into a state of inexpressible anxiety; she appeared suffocating; wished to throw herself out of her bed. Her throat and mouth became filled with a thready and tenacious mucus, which we could not get rid of.

On the 18th she raved all the night; the swelling made some progress towards the chest; tongue appeared dry and black. Pulse nearly gone.

She died at one o'clock in the afternoon.

Post-mortem.—The eschar being divided, it was found to contain pus beneath it and to include nearly the entire substance of the lower lip. On dividing the tissues, a number of small abscesses were found; sometimes the pus seemed to flow from the gaping orifice of small vessels. On further examination, it was ascertained that the right facial vein was swollen beyond measure, and that in some places it contained pus, in others a reddish sanies; it was found also to be thickened and red; and these different alterations, as well of the vessels as of the contained liquid, extended as far as the great angle of the eye, and to the right facial vein; the same lesions were found in the left facial vein, but they did not extend to so great a height; on pressing the small veins which opened into these vessels, pus escaped from them. The right jugular vein was filled with it; it was thickened and red through its entire extent. One of the thyroid veins on the left side was in the same state. The left jugular vein was in its normal state. All the large veins in the upper part of the body were distended by clots of blood. An abscess, whose existence was not at all suspected, was found between the pectoralis major and minor of the right side. It did not communicate with the abscesses of the face.

The brain was in its normal state, except that there was some injection observable.

The left pleura was inflamed; a small purulent effusion was found in it; soft pseudo-membrane of recent formation lined the lung, and caused it to adhere to the ribs. The left lung presented a great number of abscesses in different states. Some were found in all its lobes, but principally at the upper part, in the middle of its parenchyma, and immediately under the pleura. Some as yet presented merely a sanguineous mass; in others some pus was mixed with the blood; in others again nothing but pus was observed. In other parts these latter presented sometimes white pus of a good consistence, sometimes reddish, sanious pus, similar to the liquid found in some veins. Old adhesions were observed on the right lung. A very small number of abscesses similar to the preceding were found in it.

The bronchi were red and filled with mucus. Heart large; its right cavities

contained some fibrinous clots. The spleen was partially softened, and reduced to a putrid substance, similar to the sanies of the veins. The uterus was large, and contained a clot of blood. (This woman had been menstruating.) The ovaries were large and flattened. The right presented a very well developed yellow body, and in the midst a small sanguineous mass. The bladder was distended with urine.

This case resembles several others of which we meet numerous instances in the surgical wards of our hospitals. There it is not uncommon to see patients die after more or less severe operations, with these same ataxo-adynamic symptoms, of which the preceding cases furnished us such varied instances; and further, we frequently see their entire skin covered over with a yellow tint. On opening their bodies, the veins proceeding from the place where the operation took place are found to be inflamed and full of pus; this phlebitis can be traced to a greater or less distance, and at the same time collections of pus are found in several parts, as the lungs, brain, liver, and spleen; they are also met with in the articulations and in several points of the cellular tissue.

Hitherto we have seen the typhoid phenomena become developed only in consequence of acute diseases, which had in some measure attacked the system suddenly. It may, however, also happen that these phenomena mark the termination of a certain number of chronic affections, which have gradually impoverished the blood and exhausted the innervation. The typhoid state which then supervenes is but the ultimate expression of this influence slowly exercised; in this way some persons die who have been affected with organic lesions of the most varied character; in this way again several old men die who have remained hemiplegic after an attack of apoplexy. We shall here cite only one instance of this kind, which is remarkable in several other respects.

Case 46.—Symptoms of adynamic fever in a woman who, several months before, had undergone amputation of a cancerous breast—Cancerous masses in several organs.

A woman, forty-seven years of age, entered the Charité in the following state. Great prostration; dulness of intellect, and soon after complete delirium; countenance pale, and, as it were, of a leaden hue. Lips and teeth black, tongue very dry, and covered with black crusts; a little tympanitis of the abdomen; no diarrhœa. Pulse small and very frequent; tremor of the upper extremities the moment the patient attempted to move them; subsultus tendinum.

The patient began to keep her bed about fifteen days before entering the hospital, and she gradually reached the state which we have just now described. Some tonics were administered without any success. The prostration went on increasing; a large eschar formed on the sacrum, and she died in about two days after her admission into the hospital.

Post-mortem. — In the place of the amputated breast there was found a healthy cicatrix, beneath which no accidental production was observed. The other breast was not diseased. On the side of the amputated breast, there were found in the axilla some lymphatic ganglions enlarged in size, and of a lardaceous tissue.

This same lardaceous tissue was found in the following parts: — 1st. In the liver, which was as it were infarcted with a great number of white, hard masses, which had all the characters of encephaloid matter still in the crude state.

2dly. In the spleen, where we discovered masses similar to those occupying the liver.

3dly. In the right kidney, one of the cones of the tubular substance of which was entirely changed into encephaloid matter. From this cone, thus changed in structure, prolongations were observed to proceed of an accidental

production, which extended as it were by radiation to different points of the cortical substance.

4thly. In the uterus, the body of which contained three large cancerous masses.

5thly. In the lymphatic ganglions along the vertebræ, in those particularly around the receptaculum chyli.

6thly. In the right lung, through the substance of which there were scattered from ten to twelve small white masses, similar to those of the liver, spleen, &c. These masses appeared to be limited to certain lobules. But further, there was found in the lung another and a more uncommon lesion; namely, numerous lymphatic vessels distended with a whitish matter, which was observed over the external surface of the right lung, dipped into its substance, and terminated in the diseased lobules, where it was lost. The other lung presented nothing similar.

7thly. The thoracic duct was filled with a turbid, whitish matter, in which were suspended some shreds of the same colour.

Nothing particular was observed in the other organs, except that the mucous membrane of the stomach presented in its right half a slight slate-coloured tint, and some veins filled with blood passed beneath this membrane towards the great cul-de-sac.

Here is a very remarkable case, wherein we find no lesion of recent formation, which can be considered as the origin and cause of the typhoid phenomena. We can no longer explain them but by admitting that the general alteration of nutrition had gradually deteriorated the hematosis and innervation to such a degree, that the slightest shock given to the system was sufficient to produce the typhoid state.

When, in cases more or less analogous, we observe adynamic symptoms to supervene, it is much more usual to meet with some intercurrent inflammation, which has produced them, by reason of the unfavourable conditions in which the system happened to be at the time: the conditions are the predisposing cause, whilst the inflammation is but the occasional cause.

SECTION II.

TYPHOID SYMPTOMS, WITHOUT LESIONS APPRECIABLE BY ANATOMY.

The case which terminates the preceding paragraph has already furnished to us an instance in which, among the numerous alterations found in the dead body, none could be considered as the immediate cause of the symptoms of adynamic fever which terminated the patient's life. In order to account for them, we were obliged to suppose a particular modification of the innervation, which the necropsy was unable to point out to us. It is cases of this kind, in which, however, there is no longer even a previous chronic affection, as in the forty-fifth case, that we have detailed in this paragraph. The study of similar cases, however, uncommon in other respects, appears to us to be highly interesting, inasmuch as it accustoms us to see that the scalpel alone is far from giving us the key to all the problems of our science.

Case 47.—Symptoms of gastric disturbance at the commencement; profuse evacuations up and down after the administration of two grains of tartar emetic—Sudden appearance of ataxo-adynamic symptoms, and death after some hours—Very rapid putrefaction after death—No lesion.

A medical student had for several years been subject to great and unremitting mental suffering, and considerable privations. When he attained his twenty-

eight year his situation became improved. Whilst he was unfortunate, he consulted me several times for a chronic affection of the stomach, which had disappeared from the time he began to be more happy in his circumstances. Towards the latter end of May, 1831, he consulted me again, not on account of his health, which he assured me was excellent, but concerning his course of life. On the 5th of June he begged of me to pay him a visit, in consequence of being taken ill. He then gave me the following account. June 2d, he began to feel some pain of head. On the next day he felt ill all over him, and his appetite was lost. He remained in the same state on the 4th ; he thought he had some fever. On the 5th I found him in the following state :

Slight headach, principally seated in the frontal region, yellow tint in the face. General debility. Feeling of lassitude. Bitter taste in the mouth ; tongue broad, covered with a yellow coat, without any redness of its edges and apex ; nausea, and from time to time he threw up whatever liquids he had swallowed ; no thirst ; complete loss of appetite ; abdomen in every part soft and free from pain ; constipation. Skin not hot and pulse not frequent (being 70). These symptoms seemed to require an emetic ; the patient took immediately two grains of tartar emetic in two half-glasses of water. It was then four o'clock in the afternoon. In the night he had profuse vomiting, and a great many stools. All the morning of the sixth he was very much depressed. I visited him again at four in the evening ; he was then in a state of indescribable anxiety. His state of anguish was such that he could not answer questions without considerable difficulty. However, the only local suffering he complained of was an acute pain in the two arms, which pain was aggravated when his limbs were moved. The tongue had retained its moisture ; the abdomen was every where free from pain and soft, the skin was not hot, pulse frequent and small. The patient expressed to me a desire to be removed to the Pitié, into one of my wards ; he was instantly brought, and he scarcely arrived there when he was bled. I know not what happened to him during the night, but on the 7th of June, at seven in the morning, he was in the last struggle. His features were awfully changed ; intellect completely gone ; extremities cold, and pulse thready. Still further, an extraordinary phenomenon struck us ; namely, the black colour of the scrotum and penis, which was at the same time swollen ; one would have said that these parts were attacked with gangrene. An hour after, the skin of the chest, beneath the two clavicles, had also a deep violet tint, tending to black, and the same colour began to spread over different parts of the extremities. He died at nine o'clock in the morning.

Post-mortem. Twenty-five hours after death. (During all the time from the moment of his death to the autopsy the temperature was lower than it usually is in the month of June ; and other bodies, examined on the same day, and even a longer time after death, presented no trace of putrefaction.)

The meninges and surface of the cerebral convolutions presented a reddish tint, similar to that which is found in these parts on bodies which have been for several days in a state of putrefaction. A little reddish serum was found in the ventricles ; all the cerebral pulp was soft.

The lungs, which were gorged with blood, were greenish on their surface.

The heart contained in its different cavities some liquid blood, in which was observed a great number of liquid air-bubbles. Its tissue was soft and reddish, and on its inner surface it presented a brown red colour. The arteries and veins, in which a liquid and *frothy* blood was also found, presented a red tinge on their inner surface.

The mucous membrane of the stomach was separated from the subjacent tissues by a considerable quantity of gas. Everywhere this membrane was white and of some consistence. Very close to the cardia, to the right of this orifice, there appeared from five to six blackish spots, which consisted of blood which

infiltrated the very tissue of the mucous membrane: they were real petechiæ. The inner surface of the duodenum, jejunum, and ileum, and of all the large intestine, were everywhere remarkably pale. There were neither follicles, nor Peyer's patches, enlarged. The spleen was enlarged, and very soft. The tissue of the liver was very friable and pale. The gall-bladder contained a little greenish bile. The kidneys were reddish, the bladder was distended by a great quantity of urine, and its inner surface was white. The black colour of the skin of the scrotum, of the penis, thorax, and other points, was owing to a sanguineous infiltration of the sub-cutaneous cellular tissue.

As a first fact, it should be laid down that, with the exception of the ecchymoses and petechiæ, all the other alterations found on the dead body were evidently a result of putrefaction. But a very remarkable circumstance in this case is, the rapidity with which the decomposition of the parts began to take place. A longer time, or a higher temperature, is ordinarily required, in order that we may find all the cadaveric lesions observed in this case, as liquefaction of the blood, the frothy state of this liquid, red colouring of several tissues, softening of several others, emphysema of the stomach, &c. Suppose an individual poisoned by any septic substance; this is the precise state in which his body will be found. In this case also there will have been, before death, transudation of the blood through its vessels, and here the same phenomenon took place; several portions of the subcutaneous cellular tissue were filled with blood before death came on. Had the patient's life been prolonged for some hours, if we may judge from the rapidity with which the blood was effused under different points of the skin, it is very probable that all this membrane would have presented but one extensive ecchymosis; probably too some hours later the mucous membrane would in their turn have allowed the blood to pass through them, and the black vomit would have taken place. Were there not some petechiæ already in the stomach? Thus, in this extraordinary disease, what we principally observe were phenomena similar to those which present themselves when a miasm or septic poison has vitiated the blood.

We think then that there existed in this case an alteration of the blood. Was it primary? Was it the origin and cause of the other phenomena? — or, was itself the result of the vitiated state of the innervation? — a question which cannot be solved in the present state of science. Remark, also, how insidious the onset of the disease was. Simple gastric disturbance opened the scene, and in some hours it became changed by a group of symptoms approaching those of the most malignant typhus. No doubt the life of mental distress and bodily privation, from which this young man had but just emerged, had left in his entire organism a predisposition to such consequences.

A case which bears many points of resemblance to that now detailed, was published some years since, by Dr. Gauthier, of Clanbry:* neither in this case, nor in our own, was it to the circumscribed inflammation of a solid that the origin and onset of the disease can be referred, but to an unknown morbid state either of the nervous system or of the blood.

The subject of Mr. Gauthier's case was nineteen years of age. After most painful mental exertion and prolonged watching, he had a swooning fit. Two hours after this attack, which left him weak, and, as it were, exhausted, he was seized with an intense fever; he felt extreme anxiety; his limbs were painful; he complained of his throat; the general sensibility was very much exalted, the tongue was red, as well as all the mucous membrane of the mouth and pharynx; the respiration was unequal; some delirium supervened. Two days passed in this way; then the disturbance of the innervation commenced; the pulsations of the heart and arteries became irregular and weak, the breathing extremely

* Archives de Medicine, tom. xxiii., p. 232.

laborious ; the muscular strength was diminished ; the sensibility was abolished ; the intellect was very much impaired ; the extremities became cold, and a clammy sweat was the precursor of death, which came on eighty-five hours after the occurrence of swoon. He had been bled repeatedly.

In order to account for all these symptoms so *extremely ataxic*, and the aggregate of which at another period would have been called *malignant fever*, what was found at the *post-mortem* examination ? A considerable and general engorgement of the venous system, everywhere liquid and purple blood, effused in several points into the cellular tissue under the form of ecchymosis ; and further, an extraordinary softening of most of the organs, of the brain, heart, lungs, liver, spleen, kidneys, even of the very muscles, which, in every part, could be readily torn, and presented at the same time a pale colour.

The two facts now cited appear to us highly important, and we direct all the attention of observers to them.

Here now is another case in which the functional disturbances seem more especially directed to the nervous centres. The blood no longer appears to be the cause of them. The disease in the case now about to be detailed, would have been called ataxic fever by Pinel ; meningitis, or meningo-cephalitis by others. The information afforded by the necropsy was here again completely negative.

Case 48.—Febrile delirium ; convulsive movements—After the application of leeches sudden sinking; which was followed by death—No appreciable lesion.

A boy, seventeen years of age, of a strong constitution, began to feel, on the 22d of January, an intense headach, general illness, great depression : he continued, however, to work, and to eat. On the 27th of January, in order to relieve his headach, he drank some brandy. This aggravated his suffering. On the 28th he entered the Maison de Sante, and presented the following state : —

Face very much injected, as also the conjunctivæ. Ideas rather confused, and he answered the questions put to him very indistinctly. Pulse 120, skin burning hot. Tongue moist, and not red, abdomen soft and free from pain, no diarrhœa. We directed twenty leeches to the anus. According to our opinion, this patient had an inflammatory fever with predominance of cerebral excitement.

The next day, we found the patient perfectly delirious, and from time to time the face and extremities were agitated by convulsive movements. The fever still continued ; appearance of the tongue natural. He was bled to twelve ounces.

In the morning of the 30th, his state was the same. We ordered twelve leeches behind each ear. A little time after our visit, and before the leeches were applied a strong convulsive fit came on, in which all the body participated, and which was followed by great prostration. At noon, however, the leeches were applied ; their bites continued to bleed till two o'clock. The patient was then weak and covered with a cold sweat ; the blood was stopped ; but the prostration increased, the pulse ceased to beat, and the patient died at seven o'clock in the evening.

No organic lesion detected in any part of the body.

Here is a well-marked instance of continued fever with the phenomena concentrated towards the nervous system, without anatomy being able to discover any lesion which could account for them. Can it be said that the disease existed nowhere, or, if some will have it so, that it existed everywhere ? We shall not reason so ; we shall place the seat of the evil where the symptoms pointed it out, namely, in the brain ; but this fact is to be added to several others, which prove the insufficiency of our present means of investigation to discover in the dead brain the traces of the disease seated in it.

In the case now before us was the disease an inflammation? Should it be combated by bleeding? One would be tempted to doubt it, seeing the little success attending the bleeding employed, and particularly when one considers the very unfavourable results which followed the last application of leeches. Was it a case for the administration of opium? We do not think so; we did not here discover the characters of that peculiar delirium which yields to narcotics, and of which we shall speak in a subsequent part of this work. It is in cases of this kind, where the nervous disturbance seems to be the entire disease, that cold effusions, employed according to the method of Dr. Recamier, might be tried with some chances of success.

The different cases detailed in this paragraph appertained to diseases which had a rapid course, a very short duration, and in which the adynamic or ataxic symptoms developed themselves from the commencement. These diseases have not the aspect of those designated by MM. Chomel and Louis by the name of typhoid fevers. Hitherto, in all the cases connected with this latter affection which we have detailed, we found some alteration, the intensity of which was in general proportioned, with some exceptions, to the severity of the symptoms during life. . Are there, however, cases where typhoid fever, including under this designation only the affection so called by MM. Chomel and Louis, leaves on the dead body no lesion to which both the symptoms and death can be rationally attributed?

CHAPTER II.

CONTINUED FEVERS TERMINATING IN A RETURN TO HEALTH.

The object of the preceding cases and observations was to determine, by the study of the lesions found on the dead body, the seat and nature of the diseases described by nosographists under the names of inflammatory, bilious, nervous, adynamic, and ataxic fevers.

The following cases will present to us these same diseases, from their mildest to their most intense forms, terminating with more or less certainty in a return to health, under different modes of treatment. But, in order to judge of the efficacy of these modes, it will be necessary that we not only direct our attention to these cases of recovery, for there are some patients who recover or die, whatever treatment may be employed; it will also be necessary that we retrace our steps, and that with respect to therapeutics we compare those cases which terminated in death with those where recovery took place.

On studying the effects of these different methods of treatment, we shall find more than once, that their success cannot be always explained solely by our ideas of pathological anatomy, and that the lesions found on the dead body do not in all cases furnish the only therapeutic indication; there are other indications to be sought, both in the nature of the causes which have produced the disease, and particularly in the state of innervation, which sometimes has existed previously to the disease, the form and intensity of which is determined by this state, and which is sometimes produced by the disease itself. We shall thus conceive why, in practice, whilst we know that in most of what are called essential fevers there is gastro-intestinal irritation, it will not be unreasonable in some cases to pay but secondary attention to this irritation, and to exert our principal efforts to produce some modification in the innervation by the employment of tonic and antispasmodic substances, which no doubt have been often very much abused, but whose use we are not yet warranted in entirely proscribing.

The following cases will present to us those diseases known by the name of *fevers*, treated, first, by the mere expectant method; secondly, by evacuants; thirdly, by antiphlogistics properly so called (bleeding and revulsives); fourthly by tonics.

ARTICLE I.

TREATMENT BY DIET AND SIMPLE DILUENTS.

Case 49.—Recent arrival in Paris—Diarrhœa at the commencement; fever; return of the transpiration which had been suppressed; cure—Eleven days' duration.

A servant girl, twenty-one years of age, of a strong constitution, three months residing in Paris, felt general illness on the 8th of October without any known cause; she lost all appetite, and was attacked with severe purging. For the eight days following, the diarrhœa and fever continued. The patient eat almost as much as in health. She entered the Charité on the 16th of October, at which time she complained of headach. The face was red, the tongue white, bad taste in the mouth, burning thirst, pain in the umbilical region. She had had twelve very liquid stools during the last twenty-four hours. The pulse was scarcely frequent, skin not very hot. In the state of health the axillæ were the seat of very profuse perspiration, which had now stopped. We prescribed two demi-lavements of marsh-mallow and poppy, barley ptisan with mucilage, strict diet. In the course of the day the patient went but four or five times to stool. In the evening she had considerable fever. In the night she was tormented with frequent nausea. On the morning of the 17th she was in the same state as on the day before, the purging was lessened; no febrile accession in the evening, and she slept rather well during the night. On the 18th the same prescription. She had but one stool during the day. 19th she found herself very well, and had some appetite. The axillary transpiration was re-established during the night. She left the hospital on the 21st.

The cure of this patient was prompt and easy. She was scarcely relieved from the purging and fever, when she completely recovered her health and strength. She had not, in some degree, a state of convalescence. Would she have recovered so rapidly, if she had been exhausted by bloodletting. We may also remark in this woman the suppression of an habitual partial transpiration, which was re-established on the return of health. If the morbid symptoms had persisted, it would have been judicious to endeavour to restore the axillary transpiration by means of frictions, warm fomentations, the application of irritants to the part, &c.

Case 50.—Excessive hard labour and bad diet—Diarrhœa at the commencement—Tongue dry at intervals—Disease of three weeks' duration.

A tailor, twenty years of age, had spent several nights at work, and was but badly fed. His disease commenced by profuse diarrhœa. When he entered the Charité his countenance was pale and harassed; bronchial irritation was added to that of the intestines. The purging stopped several times for one or two days, and then it reappeared; the tongue became dry and red from time to time. These alternations of better and worse were observable on the patient for about three weeks. He took nothing but barley ptisan, some juleps at night, and some demulcent lavements.

In this case the symptoms announce considerable irritation in the digestive tube. Should we have endeavoured to abridge its duration by the employment of bloodletting? We think that its employment would not have been unattended

with injury in the case of a person whose digestive tube was irritated only in consequence of certain influences,* which had placed the nervous system and the blood in morbid conditions, calculated to effect a change in the entire system before the gastro-intestinal irritation appeared. Often have we seen, in such cases, that the bleeding did not remove the local affection, and, moreover, that it was immediately followed by a state of prostration, which increased according as the bleedings were repeated; so that, under such circumstances, the therapeutic indications should be deduced less from the local lesion, which gives its name to the disease, than from the state of the patient before this lesion was developed.

Case 51.---Shivering at the commencement---Tongue dry and brown---Disease of twelve days' duration.

A man, twenty-two years of age, had been ill for the last nine days, when he entered the hospital; he had at first felt some shivering, then a burning and constant heat; no purging. At the time of his admission the countenance was very calm, fever very moderate, and the general state good. However, in the midst of these symptoms, which indicated but a mild disease, the teeth were encrusted, and the tongue very dry and brown. (Barley ptisan and emollient lavements.)

On the next day the tongue became moist, the pulse lost its frequency, and he was convalescent in two days after.

This case is remarkable for the discordance existing between the state of the tongue and of the teeth, from which one might apprehend a most serious affection, and the very great mildness of the other symptoms.

There are some persons whose tongue becomes dry and brown in every attack of illness, no matter how slight. This happens principally in the case of aged persons; it is also observed in young persons, those particularly whose nervous system has been harassed by excesses, or exhausted by scanty food. This state of the tongue should caution us against excessive bleeding.

Case 52.—Residence in Paris for eight months—Excessive use of wine—Shivering at the commencement; at first a predominance of the general symptoms—Diarrhœa towards the end.

A boy, fifteen years old, who had been living in Paris for about eight months, was seized with a violent shivering a little time after he had drank more wine than usual. On the following days he had severe headach, pain in the pit of the stomach; his appetite still remained; bowels were constipated, and he had alternations of heat and cold. He had been keeping his bed for about four days previous to his entering the hospital. At his admission he had no headach, but some pain in the back of the neck and at both shoulders; intense redness of the cheeks; dizziness; tongue white, with red points, and moist; thirst not severe; some appetite; slight colicky pains; one or two liquid stools every twenty-four hours for the last two days; pulse frequent and hard; skin very hot; perspiration over the face. (Demulcent ptisans.)

On the following days there was a gradual diminution of the symptoms, and a progressive return to health.

* These different influences certainly act less on any one particular organ than on the innervation, whose powers they modify, and on the blood, whose composition they have a tendency to change. Thus, before an organ becomes manifestly diseased in persons subjected to these influences, they had produced a morbid disposition in the system. In this predisposition, much more than in the local lesion, we should seek for the cause of the different symptoms which accompany this lesion. But what is the onset of this lesion itself? It probably is the same previous morbid state of the innervation and the blood. Does not a moral excitement produce diarrhœa, colic, and vomiting? Does not the injection of putrid matter into the veins occasion gastro-enteritis in animals?

Here, again, the signs of gastro-intestinal irritation are but little marked, and it would be difficult to say whether the cause which seems to have occasioned the disease had not at first acted on the brain rather than on the stomach. Introduce, in fact, a certain quantity of alcoholic liquor into the stomach of an animal; it is not of gastric irritation that you will find traces, it is not towards the stomach that the great functional disturbances will appear, but in the nervous centres.

Case 53.—Residence in Paris for sixteen months—At the commencement the general symptoms prevailed—At a later period there was diarrhœa, petechiæ; sweats towards the termination—Disease lasted seventeen days.

A shoemaker, about seventeen years old, residing in Paris for sixteen months, had an attack of fever and purging five months before. On the 4th of August, without any known cause, he felt general illness, and an intense pain in the frontal region. Up to the 10th the illness increased; his bowels were constipated, pulse frequent and full; skin hot. (Barley ptisan, flaxseed lavement.)

On the 11th, felt himself better; headach less; same state of the digestive passages; pulse frequent; skin hot and dry.

On the 12th, diarrhœa for the first time; tongue less red; continuance of the fever.

On the 13th, continuance of the diarrhœa; tongue red and dry; fever less.

On the 14th, profuse sweat; tongue white and moist; diarrhœa lessened; pulse scarcely frequent.

On the 15th, cessation of the diarrhœa; some petechial spots on the chest and epigastrium; he was somewhat restless during the night; frequency of pulse and heat of skin increased.

From the 15th to the 20th very profuse sweats occurred; the petechial spots disappeared; the pulse lost its frequency. On the 21st the patient was very well.

This disease, though rather severe, was still treated only with diluents; care was taken merely to remove everything that might have thwarted the progress of nature. At first it was the stomach which seemed to be principally affected; at a later period the large intestine became irritated; the appearance of the petechial spots coincided with an increase of the fever; one might then dread the development of ataxo-adynamic symptoms; profuse sweats came on, and from that time the disease progressed towards resolution. Were these sweats critical? Would they have occurred if the disease, instead of being left to its natural course, had been interfered with in its progress by an active treatment? Then, probably, another group of phenomena would have presented themselves, and probably the disease would have taken another course, have been attended with other symptoms, and would have had another mode of termination.

Case 54.—Residence in Paris for nine months—Diarrhœa at the time of admission—Stupor; tongue dry and brown; petechiæ—Gradual cessation of the symptoms—Continuance of the petechiæ at the time of convalescence.

A locksmith, twenty-three years of age, who had been residing in Paris for the last nine months, had some purging for several days back, when he entered the Charité. At this time he presented an air of stupor, and had headach; tongue red and dry, and brown in the centre; abdomen free from pain, a little tense; purging diminished. Pulse of moderate frequency, unequal with respect to its strength; skin covered with a profuse sweat, red spots, a little prominent, varying from the size of a grain of millet to that of a small lentil, scattered over the abdomen and chest (two blisters to the legs; barley ptisan, emollient lavement, emollient fomentations to the abdomen). On the evening of the 7th there were sweats; pulse not frequent; from five to six liquid stools; tongue moist. On the

following day tongue more moist, constantly brown in the centre; profuse sweat; pulse not frequent, a little irregular; several stools; some appetite; continuance of the spots.

During the three days following there was cessation of the diarrhœa; tongue natural; pulse not frequent; continual sweats. The petechiæ were not lessened. Dating from the 12th there was complete convalesence; still the petechiæ did not entirely disappear till the 16th. Symptoms of rather a serious character existed at the time of the patient's entering the hospital, though the pulse was but moderately frequent. Profuse sweats continued to take place after the pulse was entirely returned to its natural state. The petechiæ, which had commenced to show themselves at the time the disease was most intense, did not diminish with it. These petechial spots survived in some measure all the other symptoms, and so appeared to be entirely independent of them.

An entero-colite, or, if you will, a dothinenterite, marked the commencement of this disease; the innervation was in a short time rather seriously affected. The stupor, the brown appearance of the tongue, and the petechiæ, were certainly not the result of gastro-intestinal irritation. This irritation was one of the elements of the disease; but, in my opinion, it did not constitute the entire of it. Yet what was done? No other active treatment, except the application of blisters to the legs, the use of diluent drinks, some lavements, and fomentations to the abdomen. No bloodletting was required to restore the patient to health.

Case 55.—Residence in Paris for eleven months—Articular rheumatism at the commencement; disappearance of the pains; continuance of the fever: subsequently stupor, delirium, tongue of a black colour; slight diarrhœa—Continuance of the disease for twenty-seven days.

A medical student, twenty-two years old, had been in the enjoyment of good health since his coming to Paris, where he had been residing for the last eleven months. He slept in an airy room. Had frequently indulged in venereal excesses. On the 12th of November he felt general illness, shivering, and some headach. On the three days following the same state continued, mouth was clammy, there was loss of appetite and constipation.

When called to him, November 16th, we found him in the following state:—countenance pale and dejected; features drawn, restless expression of the physiognomy, pain felt in moving. The tongue was loaded with a thick whitish coat; no thirst; loss of appetite; abdomen soft and free from pain, no alvine evacuation since the beginning of the disease. Pulse frequent, not full; moderate heat of skin.

Seeing no precise indication present itself, we merely prescribed a barley ptisan, two simple lavements, and diet.

The five days following the patient remained in nearly the same state. (The same prescription; a bath.)

November 22d, the eleventh day, features more sunk; prostration of strength greater; his answers were uncertain; the tongue, which was protruded with difficulty, was covered with a greyish coat, and was very viscid; this same coat glued the teeth to each other. (Infusion of orange-leaves.)

On the twelfth day he had epistaxis. On the thirteenth day tongue was dry and covered with a black crust; air of stupor; delirium at intervals. Pulse very frequent and small. On the fourteenth day a second epistaxis, diarrhœa for the first time; same state in other respects. We continued the simple diluent drinks. On the fifteenth, sixteenth, and seventeenth days there were several attacks of epistaxis. Tongue was very dry and brown; stupor; silence; delirium in the night. (Barley-water, marsh-mallow lavements, frictions with warm vinegar to the extremities.)

On the eighteenth and nineteenth days, no change; no epistaxis. (The same prescription.)

On the twentieth day there was less prostration expressed in the countenance; the eye was more natural; the tongue was a little moist. Three liquid stools since the last twenty-four hours. From the twenty-first to the twenty-seventh day the amendment progressed. On the twenty-seventh day the tongue was moist and of a good colour; the strength was improved; the diarrhœa no longer existed; the pulse still retained a little frequency, which it lost on the following days. In the month of December the patient was restored to his ordinary state of health.

The subject of this case presented more alarming symptoms than the others. He recovered under the same treatment. This was one of those cases in which we think it wise to abstain from bloodletting. Though this disease was not put out of its course by any treatment, it terminated without the appearance of any phenomenon which may be called critical.

The cases just now detailed may be of some use at a time when the prevailing theories incline us to take blood at the onset and during the course of every febrile disturbance. They show what may be expected in these diseases, whether light or severe, from a treatment purely expectant.

ARTICLE II.

TREATMENT BY EVACUANTS.

Of the individuals who form the subject of the cases contained under this article some merely presented the symptoms of that morbid state which is known by the name of gastric and intestinal disturbance; they had but a very slight fever, some even had none.

Others, presenting nearly the same symptoms as the preceding patients, had moreover fever of considerable violence.

Others, again, presented several of the symptoms of what is called the adynamic state, when we tried the effect of a vomit.

Case 56.—Symptoms of gastric disturbance; absence of fever—An emetic—Cure.

A young man, seventeen years of age, born in Paris, presented, on entering the Charité, the symptoms of that state of the system which has been designated by the name of lassitude with gastric disturbance (*courbature avec embarras gastrique*). He had lost his appetite for the last fifteen days; he had a feeling of general illness, intense supra-orbital headach. He complained of constant epigastric pain and of constipation. The tongue was yellowish, mouth clammy. There was a total absence of fever. In vain the patient had recourse to diluent and demulcent drinks, his state was not improved. Two grains of tartar emetic were given him, which acted very powerfully both upwards and downwards. At the end of twenty-four hours all the morbid symptoms had disappeared, and the patient was restored to his ordinary state of health; no sweat had taken place.

Thus in this case the employment of an emetic removed almost instantaneously symptoms which diet and simple diluents were unable to remove.

Case 57.—Headach; spontaneous vomiting—Slight fever—Emetic—Cure.

A boy, seventeen years of age, residing in Paris for about five weeks, experienced, on the 4th and 5th of October, some dizziness and pain of head. On the 5th he vomited of his own accord some bitter yellow matters. On the 6th

he presented the following state : supra-orbital headach, tongue white, bad taste in the mouth, nausea, sensation of general fatigue, stools natural, very slight fever. (Eight grains of ipecacuanha, barley ptisan, broths.) He vomited a considerable quantity of a glairy substance and a lumbricus. On the next day he was very well.

We have often seen, as in this case, persons tormented with nausea and even vomiting, who were not relieved till after taking an emetic. Then the fever ceased and perfect health was restored.

Case 58.—Constipation of long standing; stercoral tumour; fever—A repetition of emeto-cathartics; cure.

A tailor, twenty years of age, who had recently come from Bayonne, had not been at stool for the last fifteen days, when he entered the Charité, September 22d. He complained of colicky pains. There was found around the umbilicus a moveable tumour, which was considered by M. Lerminier as the result of the accumulation of fæces in the cells of the colon. The tongue was covered with a yellowish thick coat: pulse frequent. (Two lavements of senna and sulphate of soda, of each an ounce. Linseed ptisan.)

A great quantity of very hard fæces was discharged. The day after the umbilical tumour was gone. The pulse, though less frequent, was not yet natural. The yellowish coat of the tongue continued. Ten grains of ipecacuanha were prescribed. The patient vomited but little, but he went frequently to stool.

On the 24th, tongue bright red, appetite good, pulse natural. This state continued for the next two days. On the 27th the mouth again became clammy; there were borborygmi and constipation, slight frequency of the pulse. (Whey, with half an ounce of sulphate of soda.) Four or five stools in the course of the day.

October 1. The symptoms of gastric disturbance still continued. Two pastilles of emetine, each containing half a grain of this substance, were given in the interval of a quarter of an hour between each. The patient vomited some minutes after having taken the second of them : he had one evacuation by stool. He soon left the hospital in good health.

We shall remark in this case the way in which the symptoms returned several times, which, on returning, were combated either by an emetic or a purgative. They did not reappear after the last vomiting occasioned by the emetic.

We shall also call attention to the tumour which was felt through the abdominal parietes, and which consisted of hardened fæces.

Stercoral tumours, similar to that observed in the preceding case, have been taken sometimes for schirrous tumours. We have seen a striking example of this at the Charité in an old woman, who presented between the epigastrium and umbilicus, a prominent, knobby tumour, which was moveable and painful. This woman gave but little information regarding her previous state. Being first taken for a little time into the surgical wards, she was considered to be affected with schirrus of the epiploon. The same opinion had been given of the case at the central bureau. She was subsequently placed under M. Lerminier's care. On examining the abdomen, he soon recognised, along the course of the colon, knobby tumours similar to the preceding, except that they were smaller. It was soon ascertained that she had not been for a long time at stool. M. Lerminier considered these tumours owing to the accumulation of fæces. Purgatives were administered both up and down ; an immense quantity of hard fæces was passed, and the pretended schirrus disappeared.

In other cases, we have seen the prolonged accumulation of matter in the large intestine give rise to general tension of the abdomen, and to pains so acute as to

excite suspicion of peritonitis. We observed these pains in their highest degree of severity in a woman who had been recently confined. When we saw her for the first time, her countenance was pale; her features very much altered, expressed the most intense anxiety; the pulse was small and very frequent; the abdomen was the seat of very severe pains, which forced the patient to scream, and were increased on pressure. These pains, which were rather slight at first for some days, had attained, since the last forty-eight hours, this high degree of severity. M. Lerminier, on examining the abdomen, felt along the course of the colon knobby, uneven tumours, which were moveable under the finger. The patient also informed him that for more than twelve days her bowels had been obstinately constipated. Upon this M. Lerminier suspected the real nature of the disease: he first gave a purgative lavement, which brought away a considerable quantity of very hard fæces: the pains were lessened, but did not disappear. On the next day an ounce of syrup of buckthorn, with the addition of four grains of gamboge, brought away an enormous quantity of fæces; the pains disappeared, and in twenty-four hours after the patient was restored to her usual state of health.

Case 59.—Pleurodynia at first; subsequently diarrhœa; absence of fever—An emetic given during the existence of the diarrhœa; two days after, complete recovery.

A mason, twenty years of age, who had been residing in Paris for a year, felt, during the last fifteen days, a pain under the left breast: it was increased by percussion and strong inspiration. He had no cough, and breathed freely. For the last ten or twelve days he had some purging; his tongue was covered with a thick yellowish coat; he had no fever; he vomited a worm the evening he entered the hospital. The day after, 8th of May, he took twelve grains of ipecacuanha, with a grain of tartar emetic. He vomited once a great quantity of yellow bile and thick mucus; he went but four times to stool.

On the 9th the pain of side was entirely gone; the tongue had become clean.

10th. The diarrhœa was gone, the patient perfectly restored, and left the hospital on the 12th.

A new circumstance presented itself to us in this case, namely, the administration of an emetic, whilst there was diarrhœa, and the cessation of this diarrhœa after the vomiting.

This slight disease presents several traits of resemblance to an affection described by Stoll under the name of bilious pleurisy: loss of appetite, bitter taste in the mouth, spontaneous vomiting, thick coating of the tongue, purging, and at the same time a fixed pain in a point of the thoracic parietes; lastly, the rapid disappearance of the stitch in the side, and of the other symptoms, after the employment of an emetic.

Case 60.—Symptoms of bilious fever—Inefficacy of simple diluents—Rapid recovery after the employment of an emeto-cathartic.

A sawyer, twenty-three years of age, residing in Paris for the last five months, felt, without any known cause, on the 13th of August, some headach, nausea, and colic. These symptoms continued on the following days. He was continually drowsy. Purging soon set in. To relieve it he took a bottle of wine with three hard eggs. The purging was accordingly stopped for twenty-four hours, but it then returned. When the patient entered the Charité, August 21st, he complained of a severe frontal headach, dizziness, general fatigue; the tongue was whitish, bad taste in the mouth; frequent nausea took place; there was a sensation of weight at the epigastrium; taking drinks increased it, and occasional nausea. Two or three watery yellow stools took place in the twenty-four hours. The

pulse was frequent and full; the skin was moist. (Vegetable lemonade, linseed lavements, emollient fomentations over the epigastrium, diet.) On the four days following, the mouth became worse; the tongue was very much loaded; the same symptoms continued. The same treatment had been employed each day.

On the 26th the patient took some whey, with the addition of two grains of tartar emetic and half an ounce of sulphate of soda. He vomited, and went several times to stool. On the following day the bad taste of the mouth was gone; but a small whitish coat was observed on the tongue; pulse but of moderate frequency. (Whey, with pulp of tamarinds.) 28th and 29th. Two or three stools in the twenty-four hours. Complete cessation of the fever. 30th. The appetite was good; perfect recovery.

The signs of a gastric affection were very well marked in this patient. Diet and simple emollients were ineffectual to remove on the one hand the fever, on the other hand the bad taste in the mouth, the nausea, the weight in the epigastrium, the coating of the tongue, and, lastly, the purging. Who can help being struck with the rapid improvement which took place as soon as the patient took an emeto-cathartic?

Case 61.—Symptoms of intense bilious fever; tendency of the tongue to become dry; absence of diarrhœa—Bleeding; amendment—Still a continuance of the fever and bilious symptoms—Vomiting and purging; return to health.

A Savoyard, thirty years of age, residing in Paris for the last two years, skin brown, muscles well developed, felt, since the twelve days previous, a general illness and some shivering; he lost appetite; the frequency of the stools was not increased. He kept quiet, and observed strict diet. At the time of his entering the Charité, on the 10th of April, there was intense headach, redness of face with a yellow tint around the lips and alæ nasi; conjunctiva a little yellow; tongue whitish, dotted with red points, showing a tendency to become dry; mouth very bitter, nausea, pains in the epigastrium, stools natural; pulse frequent, skin hot and dry. There was in this individual a group of inflammatory symptoms, not presented by the patients already mentioned. M. Lerminier accordingly commenced by prescribing a bleeding to the extent of four palettes. The blood drawn was slightly buffed.

On the 11th there was a perceptible improvement; tongue was moist; pulse less frequent. On the 12th the patient complained of great weight of head, and of an intolerably bitter taste in the mouth. The pulse was more frequent than on the day before; he had had one stool. (Barley ptisan.) On the 14th the tongue was covered with a yellowish coat. (Six grains of ipecacuanha.) The patient vomited a great quantity of yellow bitter bile; he went three times to stool: he sweated during the night.

On the next day, the 15th, the pulse had lost its frequency; the mouth was less bitter; the pain of head was gone; the tongue was still loaded. Two grains of tartar emetic were prescribed. The patient did not vomit, but had two copious stools; he sweated that night. 16th, the tongue resumed its natural appearance; the bad taste in the mouth was gone. 17th, perfectly recovered.

In this case the employment of evacuants was preceded by a bleeding; it exercised a favourable influence on the symptoms. The patient, after losing some blood, was certainly better, but he was not cured; the pulse had not lost its frequency; the pain of head and bad taste in the mouth still continued. It was then that emetics were prescribed; ipecacuanha, given in a small dose, produced copious vomiting; tartar emetic, afterwards administered, merely purged; and it was after this evacuation downwards that all the morbid phenomena finally ceased.

Case 62.—Diarrhœa, fever, etc.—Bleeding and an emetic on the same day—Rapid recovery.

A man, twenty-two years of age, residing in Paris for about two months, felt, seven days before his admission into Charité (11th April), general illness. He had at the same time some shivering. On the 12th he kept to bed. On the following day had diarrhœa and fever.

Present state, April 18th, tongue loaded; abdomen a little tumid, free from pain; ten stools in the twenty-four hours; pulse full and frequent; skin hot; cough with catarrhal expectoration. (Twenty leeches applied to the anus at eight o'clock in the morning, ten grains of ipecacuanha at noon.) The patient vomited once, and went from twelve to fifteen times to stool. On the 20th the fever was gone; he had but three alvine evacuations. He was soon quite well.

Case 63.—Fever; tongue red; abdominal pains; constipation—Employment of tartar emetic—Temporary amendment; then increased violence of symptoms, which yielded to an application of leeches.

A boy, sixteen years of age, who had been residing in Paris for about five months, felt some abdominal pains since March 15th. On the 20th he discontinued to work. He entered the hospital on the 28th, and complained of pain over the entire abdomen, which was increased by pressure. Constipation; bad taste in the mouth; tongue white at its centre, intensely red at its edges and apex; pulse frequent; skin hot. (Two grains of tartar emetic in a pint of veal broth; barley ptisan.) The patient vomited, and went to stool six times. At five in the evening there came on an exacerbation of the fever, during which the abdominal pains increased. On the 29th, the pulse was scarcely frequent; the tongue presented the same appearance. (Barley ptisan.)

On the 30th there was intense fever; tongue red, evincing a tendency to become dry; acute pain around the umbilicus; stools natural; cough frequent and painful. (Ten leeches on either side of the chest.)

On the 1st of April, there was complete apyrexia; cough nearly gone; disappearance of the abdominal pain. In a few days he was completely well.

We cannot too strongly call attention to the apparently improved state in which we found the patient the day after he took the emetic. If we had then discontinued to watch the case, we should have considered it as proved, that in this case, notwithstanding the redness of the tongue, the administration of the tartar emetic had been attended with advantage. This improvement, however, was but temporary; and two days after, the exacerbation of the fever, and the commencing dryness of the tongue, clearly showed how wrong we would have been in relying on the improvement of the preceding day. We have met other cases in which, as in that now before us, it was not till two days after the employment of an emetic that its bad effects were perceived, as if the tartar emetic, when introduced into the digestive tube, occasioned in some persons a kind of irritation which was not indicated by the symptoms till after the lapse of a certain time. We shall here make a remark which may not be considered out of place, namely, that among the persons to whom tartar emetic was given according to Rasori's method, we have seen some who, after having borne for several days twenty or thirty grains of tartar emetic daily with impunity, began to manifest signs of gastro-intestinal irritation precisely at the period when the employment of this medicine was suspended, or even some time after its use had been wholly discontinued.

Case 64.—Suppressed perspiration—Remittent fever mild at the commencement; at a subsequent period, dry tongue, diarrhœa, prostration; miliary eruption—The expectant treatment used at first; then purgatives; bitters towards the termination.

A mason, fifty-three years of age, had immersed himself in cold water, whilst

he was in a state of perspiration, on the evening of the 29th of July. He slept well, and felt nothing particular on the next day till about three o'clock in the afternoon. He was then seized with a violent shivering, which was followed by great heat and profuse perspiration during the night. From the 30th of July to the 6th of August he had a similar attack every day; in the morning he was very well, and continued to eat his meals and to work till the hour of shivering. On the morning of the 7th he felt ill; the shivering, which came on at the usual hour, was followed by heat, and not by any sweat. On the 8th he felt a burning heat of skin during the entire day, and kept his bed.

On the 10th he entered the Charité, and presented the following state: expression of the face natural, tongue red and dry, thirst, loss of appetite, constipation, abdomen free from pain, pulse frequent and hard, skin hot and dry, breathing a little hurried; five or six red, lenticular spots, prominent to the touch, on the epigastrium and lower part of the sternum. (Barley ptisan with oxymel, emollient lavement.) In the course of the day the state of the patient underwent no change.

11th. Tongue red and dry, and exhibited a tendency to be incrusted; no stool; pulse hard, moderately frequent; slight moisture; same character of the breathing, spots more numerous. (Same prescription.)

12th. Air of stupor, meteorism, same state of tongue, no stools, disappearance of the spots. (Whey, with tamarinds, broths.)

13th. Great drowsiness, answers distinct; tongue dry, cleft, presenting at its centre an appearance resembling burned cream. The tamarinds had not overcome the constipation. (Half an ounce of sulphate of soda in the whey, barley ptisan with oxymel, emollient lavement, broths.) Only one stool up to the following morning; the patient continued drowsy all the day.

14th. The tendency to coma continued. Same state of tongue. Breathing always a little hurried. Some crepitous râle was heard in different points of the chest. (Blister to the sternum.)

From the 15th to the 20th the state of the patient underwent no change. He had still strength enough to sit up. On the 20th a slight diarrhœa set in; on this same day some *sudamina* appeared on the abdomen; at the same time another eruption showed itself. The lower part of the sternum, the left flank, and left side of the chest were covered with a multitude of small red, confluent patches, surmounted for the most part by miliary transparent vesicles.

On the day after, the double eruption continued, as well as the diarrhœa. The tongue was moist, pulse less frequent.

From the 21st to the 24th the *sudamina* and miliary pustules declined. The tongue was now natural, still the air of stupor did not cease; the patient seemed both physically and morally benumbed. The crepitous râle, which was heard posteriorly on both sides of the chest, seemed to indicate œdema of the lungs. The pulse still retained some frequency and the skin some heat. The diarrhœa had ceased. Up to this period the patient had taken nothing but some demulcent ptisans. M. Lerminier prescribed the compound hydromel, and a strong decoction of polygala root.

On the following days, under the influence of this new treatment, a very rapid improvement took place; the crepitous râle ceased, the strength returned, the natural expression of the countenance was restored, and the patient soon left the hospital perfectly recovered.

This affection commenced by a quotidian intermittent, evidently produced by the combined impression of cold and moisture on the skin. At the end of the eighth fit this intermittent fever was changed into a continued fever, with redness and dryness of the tongue and a petechial eruption. Not till fourteen days after the invasion of the continued fever, some diarrhœa set in at the same time that *sudamina* and a miliary eruption appeared. From the simultaneous ap-

pearance of these three phenomena we may date the occurrence of a perceptible amendment.

The patient took laxatives several times whilst the tongue was dry, and he was plunged into a state of stupor. Such is the treatment adopted in similar cases by English physicians. Only one blister was applied to the sternum at a time when the respiration was perceptibly impeded. Bloodletting was not resorted to. But when the disease was now become less severe, and when the predominant affection of the patient was a state of languor of the entire system, combined with pulmonary engorgement, recourse was had to tonic treatment. We have seen with what rapidity the crepitous râle disappeared as soon as the polygala was given. Was it not by raising the general strength of the patient, that the serous engorgement of the lungs was removed ? If this latter phenomenon has been considered as a product of pulmonary *irritation*, such a treatment would have been avoided, we should have had recourse to bleeding and to revulsives ; and it is a question with me, whether so favourable a termination would have been obtained.

ARTICLE III.

TREATMENT BY ANTIPHLOGISTICS (BLOODLETTING AND REVULSIVES).

Case 65.—Fever ; diarrhœa; tongue dry ; two applications of leeches to the anus ; one venesection.

A baker, eighteen years old, of a strong constitution, had supped as usual on the 28th of October. Three hours afterwards he was seized with an intense supra-orbital headach ; he felt himself benumbed ; he then had a violent shivering, which was followed by great heat and perspiration. On the 29th the fever was very high ; the patient went more than thirty times to stool in the course of the day. The abdomen was free from pain. This state continued during the following days. He entered the Charité November 1st, and on the 2d presented the following state : —

Headach ; face red ; eyes very bright; general debility ; tongue yellowish, and a little dry ; thirst ; purging as severe as at the commencement; alvine dejections watery, and not accompanied with tenesmus ; abdomen free from pain ; pulse full, and moderately frequent ; not much heat of skin. (Thirty leeches to the anus ; barley ptisan, with mucilage ; strict diet.)

The diarrhœa was considerably diminished ; the patient went but four times to stool in the following twenty-four hours. At night he felt extremely hot, and did not perspire.

On the morning of the 3d the headach was gone, but the tongue was dry ; pulse strong; skin hot and dry. Thus, though the diarrhœa was lessened in consequence, no doubt, of the leeches applied to the anus, the fever had increased. He was bled to the amount of two palettes. The same ptisan was continued, and strict diet enjoined.

The purging was greater than on the preceding day (from eight to nine stools). He was very much disturbed during the night.

On the 4th the fever still continued ; the tongue was moist and red ; abdomen always free from pain ; ten additional leeches were applied to the anus. As those first applied, they had undoubted influence on the purging ; he had no stool till the following morning, the 5th of November, which was the ninth day of the disease. He had had a tranquil night ; the tongue had lost its redness ; the skin was a little hot, and the pulse was scarcely frequent. The patient was infinitely better ; the purging did not return ; and on the 10th of November he was perfectly recovered.

In this case we see the morbid symptoms at first become aggravated, the fever become more severe, the tongue become red, &c., notwithstanding the very active employment of an antiphlogistic treatment. Thus the leeches did not carry off the disease, which, during their employment, still continued its progress, and became worse. The only improvement was in the purging, and in this case the bleeding from the anus acted more effectually on it than the venesection. We are not certain that the general improvement which followed the second application of leeches was owing to this application.

Case 66.—Acute bronchitis; pleurodynia; tongue red; fever; critical sweats—Bloodletting; leeches to the chest.

A man, thirty-one years old, who had been residing in Paris for the last four years, brown skin, black hair, muscles not much developed, usually in the enjoyment of good health, felt, on the 16th of October, painful tension of the right cheek. He continued his usual work. This tension increased on the following day; he thought himself somewhat feverish; he had headach; an aversion to food. On the 18th the pain of cheek disappeared, but he felt rather an acute pain in the inferior and lateral part of the chest on the right side towards the loins. He kept his bed on the 20th of October. On the 22d he entered the hospital, presenting the following state: —

Supra-orbital headach; yellowish tint of face; eyes heavy; pains in the limbs; pain in the site of the three last ribs, extending to the right flank and loins, and increased by pressure and cough, but not by the inspiratory motions; tongue red; thirst; bad taste in the mouth; abdomen free from pain; constipation; pulse strong, not frequent; heat of skin moderate; breathing free; slight cough; expectoration that of acute catarrh; percussion sonorous in every part; sibilous râle on both sides below the clavicles (a sign of simple pulmonary catarrh). (Twelve leeches to the right side of the chest; venesection to the extent of two palettes; infusion of violets.)

On the 23d the blood drawn the day before formed into a coagulum of but little consistence, and was not buffed. The patient slept tolerably well; pain of side gone, as also that of the head; tongue no longer red; thirst less; frequent borborygmi in the abdomen; he had had no stool; the pulse was strong, and always a little frequent; slight sweats came on during the night for the first time (on the night of the seventh day).

On the 24th he found himself very well; he still sweated a little during the night; fever altogether gone; appetite returned. (Bourrache oximellée; rice cream; broths.)

On the 25th, profuse sweats during the night, but they did not appear on the following days. The patient, complaining of troublesome borborygmi and constipation, took, during two days, two glasses of a purging mixture. He left the hospital on the 1st of November.

The continued fever which forms the subject of this case commenced by a fluxion in the right cheek, which, at the end of three days, was succeeded by a pain in the thoracic parietes and the flank of the right side; at the same time there was fever, headach, loss of appetite, cough, yellowness of the face. Stoll would have called this group of symptoms by the name of bilious pleurisy, and he would have given a vomit; but to us the seat of the pain appeared to be in the external parts of the chest, and the cough was the effect of simple pulmonary catarrh.

The sweats, which came on during the night of the seventh day, and which continued on the following days, seemed to be critical.

The local and general bleeding accelerated the resolution of the disease. The pain of side yielded to the application of the leeches. It is only by mere hypothesis that we could, in this case, give to the fever a very determinate seat.

or a manifest origin. Now, in practice nothing is more common than such cases; nothing is more common than thus to observe, in the midst of a febrile state, whether temporary or permanent, a rapid succession of several local affections which coincide with the fever, without its being always possible to determine their relation to it, and which are all probably connected by a link which escapes us. An instance of this occurs in the following case, which may be advantageously compared with the case just detailed: —

A young man presented himself at the central Bureau, still bearing, on several points of the skin, traces of numerous furuncles, which he had previously had in succession on the neck, axilla, back, abdomen, perineum, and thighs. Before this eruption he had a swelling on one of the cheeks, without any redness of skin, which he calls a fluxion. When he presented himself at the central Bureau this person was affected with a well marked urticaria, and he stated that he had had a similar eruption several times. He entered the Charité, the urticaria disappeared, and at the same time rheumatism, attended with fever, manifested itself at the three great articulations of the upper extremity of the left side. For this, tartar emetic, in large doses, and bleeding, were prescribed. At the end of five or six days the rheumatism disappeared, but the day after erysipelas of the face came on. It went through its usual stages, and, as no other affection complicated it, no active treatment was employed. The patient appeared convalescent, when one morning he complained of a slight pain towards the middle of the left scapula; a little hardness was observed here without any redness of the skin. On the day after, in this same part, wherein, twenty-four hours before, there was nothing but a slight almost imperceptible swelling, we found an enormous abscess, which in the course of the next twenty-four hours became still larger. The skin was not red, and the pain was so moderate that the patient continued to lie on his back. He then passed into the surgical wards, and we lost sight of him.

Case 67.—Remittent fever; diarrhœa; symptoms of pneumonia; three bleedings employed.

A locksmith, twenty-three years old, who resided in Paris for the last two months, and ordinarily enjoyed good health, had an attack of indigestion, two days before, after drinking some bad wine. In the night he vomited, and went several times to stool. On the following days the diarrhœa continued; he had an attack of shivering every evening, and perspired at night; his skin was very hot, and he was very ill during the day.

At his admission his face was a little red; tongue foul, slightly red at the point; bad taste in the mouth; abdomen large; skin hot; pulse not very frequent; cough violent and frequent; sputa those of acute catarrh. (Two palettes of blood were taken from him.) Blood not buffed; but the next day the sputa were become viscid, and presented a rust-coloured tint. The chest, when percussed, sounded well in every part; everywhere, too, the respiration was clear; there was but slight dyspnœa; still, from the character of the sputa, the existence of pneumonia was undoubted; the pulse was become more frequent. (A second bleeding.) This blood presented a thick buffy coat; the sputa, which were always viscid, had lost their rust-coloured tint; the fever was high; the tongue red, and showed some tendency to become dry; the diarrhœa continued. This group of inflammatory symptoms was combated by a third bleeding; it presented as thick a buffy coat as the second. The improvement which followed it was remarkable. On the next day (September 21st), the sputa again became those of simple catarrh; the tongue was moist, and of a bright red colour; pulse was moderately frequent; the skin was covered with a little moisture; the diarrhœa had not diminished. The patient left the hospital quite well on the 29th.

Bloodletting was indicated in this case more than in any of the preceding;

the vein was opened three times. The first bleeding did not prevent the disease from developing itself; the character of the sputa alone was modified after the second; and it was not till after the third that a manifest and permanent improvement was observed.

Thus, in recapitulating the preceding cases with respect to the therapeutic results which may be deduced from them, we are led to conclude, that, to combat the diseases of the nature of those which form the subject of these cases, bloodletting has not all the efficacy generally attributed to it. Several patients, who were enjoined strict diet and rest, recovered as promptly as those who were bled. In others, after the bleeding, the disease still continued its course, and it was only by degrees that its solution was effected. In others there was but a temporary remission; after which there was again an exacerbation. In no one instance did the disease yield immediately after the bleeding. However, it is reasonable to suppose that, among these patients, there were some in whom the bleeding had the effect of preventing the symptoms from becoming aggravated, if it did not remove them.*

Case 68.—At first intense shivering, followed by heat and sweat; stitch in the side; delirium, petechiæ; great prostration—During the first days of the affection leeches to the epigastrium.

A mason, nineteen years old, residing in Paris for the last two years, of rather delicate constitution, had gone to bed very well on 21st of June. Nothing unusual had happened to him during the day. On the 22d, when getting up, he felt some headach, general illness, and great lassitude; still he went to work as usual, but violent shivering soon obliged him to desist. He went to bed; the fever was succeeded by burning heat; all the night he sweated profusely. On the five days following he was, he stated, almost constantly in a state of perspiration. He had entirely lost his appetite; did not vomit; bowels were constipated; he had also a slight cough. On the 25th leeches were applied to the epigastrium. Having entered the Charité on the evening of the 28th June, he stated, that, for the last few hours, he felt below the left breast an acute pain, which was increased by pressure. The respiration was impeded; there was considerable fever; he was bled to the amount of three palettes; the blood drawn was covered with a thick buffy coat. During the night the patient raved.

On the following morning he no longer presented that state of general excitement which was observable the evening before; the pain of side was gone; the respiration was tranquil; cough not very frequent; the sputa presented no particular characters; pulse moderately frequent; but, what was particularly remarkable, was the extreme dejection expressed in his features, a general debility, such that the slightest change of position was very painful; the tongue a little loaded; mouth clammy; the lips and teeth dry; abdomen free from pain; there had been no stool since the last two days; skin not hot; several rose-coloured spots, as large as a flea-bite, and slightly projecting, were scattered over the chest. (Violette oximellée, emollient lavement, broths.) No stool was obtained by the lavement. In the evening there was a profuse sweat; at night the delirium reappeared.

Next day the expression of the face more natural; intellect perfect; complete apyrexia. From this time no bad symptom presented itself; convalescence was speedy; and he left the hospital in a few days.

There are some circumstances in this case not devoid of interest. The onset was that of an intermittent fever; yet, whilst in this affection, the shivering comes on most usually in the midst of a perfect state of health, it was here pre-

* M. Louis has published Observations on Bloodletting confirmatory of ours. (*Archives de Medicine*. November, 1828.)

ceded by general indisposition and spontaneous lassitude. The fever continued on the following days without any other local symptom except anorexia and a slight cough. Still, on the sixth day, more marked symptoms came on with respect to the chest, and there was a threatening of pleuro-pneumonia. He was bled; the symptoms of pulmonic inflammation disappeared, and the delirium, which came on during the night, indicated that the brain was now become the seat of irritation. From the succeeding day all signs of inflammation ceased; there was scarcely any fever, and we were particularly struck by the symptoms of great prostration, with the appearance of petechiæ. The prognosis seemed very unfavourable; the return of the delirium on the following night confirmed our fears, but, fortunately, they were not well founded. After two days the prostration was gone; the spots disappeared, the fever entirely ceased, and the patient became convalescent. What would have been the consequence if, in order to combat this prostration and delirium, bloodletting had been employed? In my opinion it would only have aggravated these symptoms, as we have seen on many similar occasions. We may remark that, during the existence of these symptoms, a little broth was allowed. How, in this rapid succession of symptoms, are we to trace the course of a disease such as it is found described in books?

ARTICLE IV.

TREATMENT BY TONICS.

Case 69. — Recent arrival in Paris — At first headach; symptoms of what is called inflammatory fever; afterwards nervous symptoms; stupor; involuntary stools; petechiæ — At the beginning bleeding and strict diet; then quinquina and broths.

A joiner, twenty-two years of age, residing in Paris only for the last two months, with brown hair and small muscle, felt a great pain of head, without any known cause, on the 16th of July. On the following day there was a continuance of the headach; pain in the epigastrium; loss of appetite; nausea; temporary shivering; slight cough; pain in the throat; constipation. He remained in this intermediate state, between health and sickness, up to the 22d. He kept at rest, and observed strict diet. He entered the Charité on the 22d.

The next morning his face was flushed; eyes bright and injected; the eyelids, weighed down, were raised with difficulty; violent frontal headach; dizziness; tinnitus aurium indicated a considerable afflux of blood towards the brain; the tongue was covered with a whitish thick coat; there was complete loss of appetite, and some thirst. The abdomen was the seat of general pain, which was increased by taking drink. On the preceding day there had been a stool for the first time since the last six days; the pulse was frequent and full; the skin was hot; there was a slight cough.

This group of inflammatory symptoms was sufficiently marked to indicate a bloodletting. (He was bled to the extent of three palettes; whey with tamarinds; emollient lavement; strict diet.) The blood drawn from the vein resembled a large coagulum without a buffy coat.

The three following days there was no perceptible change; one stool every twenty-four hours.

On the night of the 26th several liquid stools occurred, preceded by slight colics. On the 27th the abdomen was a little tympanitic and painful; the cough, which was very slight on the preceding days, had become more severe and more frequent; the breathing was short; speech accompanied with panting; the expectoration was purely catarrhal; auscultation and percussion afforded

no information; the heat of skin was not considerable, and the frequency of the pulse was moderate; some round lenticular spots, resembling the rust of iron in colour, appearing a little prominent to the touch, were scattered over the chest and abdomen. (Twelve leeches to the anus; barley ptisan; mucilaginous mixture.)

On the next day the breathing was more free; cough diminished; the abdominal pain disappeared after the application of the leeches; the spots had increased; thirst more intense; the lips were dried; from ten to twelve stools since the last twenty-four hours.

On the 29th the tongue was red, for the first time, on the edges and at the apex; the pulse was very frequent. (Twelve leeches to the anus.)

On the 30th he had an anxious and distracted air; eyes indifferent to surrounding objects; the lower jaw occasionally performed some lateral movements. When the patient was interrogated, extreme irregularity was observed in his ideas; he appeared to be in a state bordering on delirium; he had had two or three involuntary stools; the appearance of the tongue was now again natural; the spots, confluent in the chest and abdomen, were extended to the neck and arms. (Two blisters to the legs; barley ptisan; emollient lavement; broth.) 31st. Intellectual faculties were now clear; still the air of distraction continued.

August 1st, an air of stupor; diarrhœa diminished. In the course of the day the patient was frequently speaking to himself; the skin was hot, and constantly dry. August 2d, stupor increased; ideas very dull; lost of memory; speech embarrassed, as if the tongue were dry, yet it was moist and red, as in a state of health; three or four liquid stools, small in quantity; the pulse was readily compressed; in other respects it preserved the same character. The confluent eruption covered the abdomen, chest, and neck; the spots on the arms had disappeared. (Diluent ptisans continued.)

From the 3d to the 6th the stupor, sinking of the features, and debilitated state of the intellect, increased; the other symptoms remained the same.

On the 7th the patient took, for the first time, half an ounce of extract of quinquina in a mucilaginous potion. This was continued on the 8th and 9th; and on the 10th a pint of aqueous infusion of quinquina was added to the prescription; broths.

From the 10th to the 13th the purging ceased; one hard evacuation took place every twenty-four hours; the tongue had an excellent appearance; the abdomen was soft and free from pain; the intellectual faculties resumed their usual energy; the air of stupor was gone; the spots had disappeared, and in the parts where they had existed desquamation of the cuticle was observed; the pulse became less frequent. This favourable change took place during the administration of tonics.

On the 14th the pulse had entirely lost its frequency, and the skin its heat. From this time the patient may be considered as convalescent. The extract of quinquina was suppressed, but its aqueous infusion was continued for eight or ten days longer. The patient left the hospital on the 1st of September.

This case presents an instance of a very confluent and very extensive petechial eruption. Such eruptions are but rarely observed. It appeared at the same time as the ataxo-adynamic symptoms, and faded according as the latter diminished. The desquamation of the epidermis, which marked the termination of this eruption, gives it a trait of resemblance to measles or scarlatina. When the patient entered the hospital it would have been difficult to say positively whether any one organ was more the seat of lesion than another. It appeared that the brain, lungs, and abdominal viscera, were all in some measure threatened with inflammation. In the midst of this general derangement of the entire

system, the sensation of hunger might no doubt be abolished without this anorexia proving inflammation of the stomach. A sudden mental emotion produces the same effect, and derangement of the nervous system sufficiently explains it. Be this as it may, this group of inflammatory symptoms was combated by a general bleeding. Three days passed on without any improvement taking place. At the end of this time slight diarrhœa set in; then it was towards the thoracic organs that a more active congestion evinced a tendency to be formed, and at the same time some petechiæ appeared. Leeches were applied to the anus; the symptoms of pulmonary congestion disappeared, but the purging increased, and the tongue became red. A second application of leeches was prescribed. The next day the scene is changed. It was the nervous symptoms principally which predominated, and the tongue resumed a natural appearance, which it retained to the termination of the disease. But this return of the tongue to its natural state did not prevent the disease from becoming worse and worse. This rapid succession of symptoms, and more particularly this singular mixture of excitement and debility, are very remarkable. The nervous symptoms improved after the application of blisters to the legs, but these symptoms soon reappeared with more intensity, and the ataxo-adynamic state became more and more marked. Combated by tonic treatment, the symptoms which characterise this state disappeared whilst the quinquina was administered, and at the same time also the purging ceased.

Case 70.—At the commencement anorexia and diarrhœa; stupor; delirium; tongue red; petechiæ; application of leeches; improvement—Reappearance of the ataxo-adynamic symptoms in consequence of an error in diet; gangrene of the blisters; abscess; continuance of the diarrhœa after the cessation of the fever—Tonics.

A man, thirty-four years of age, of a strong constitution, residing in Paris for the last year, fell ill, and complained of entire loss of appetite on the 18th of April. For this he could not assign a cause. On the following day the illness increased; a feeling of lassitude came on, and slight purging.

On the 25th of April, the day he entered the Charité, his face, which was much injected, presented at the same time an air of stupor which indicated a serious disease. During the night there had been some delirium; there was some petechiæ on the chest, and in smaller numbers on the abdomen; the tongue was red; two liquid stools had taken place during the last twenty-four hours; the abdomen was soft and free from pain; fever was principally indicated by the burning heat of skin; pulse but moderately frequent.

There was to combat in this patient—first, the tendency of blood towards the head, which was indicated by the delirium at night; the intense redness of the eyes and face; and the commencing stupor. (Twenty-four leeches were applied to the neck.)

2dly, intestinal irritation, indicated particularly by the character of the alvine dejections. (Twelve leeches to the anus.)

This double abstraction of blood should also moderate the fever, whatever might be the cause of it. The leeches applied to the neck bled very profusely; still the patient was delirious in the evening and all the night. On the morning of the 26th, his intellects were clear; the expression of the countenance was more natural; the redness of the tongue was gone; the petechiæ had in a great measure disappeared; only one stool of considerable consistence had taken place; the fever was not high. M. Lerminier directed the application of two sinapisms to the legs in the evening, with the intent to avert from the brain the periodical irritation of which this organ became the seat every night. (Demulcent ptisans.) The delirium was accordingly much less. On the 27th the petechiæ were more numerous; some increase of the purging (a sinapism in the evening); no delirium. On the 28th, the same state. (Broths.)

In the evening of the 28th the patient procured a little food by some means. 29th, tongue red and dry, diarrhœa increased; the air of stupor had reappeared, the frequency of the pulse had increased, but it was very readily compressed; the tendency to the adynamic state was evident. Though the exacerbation of the inflammatory state of the digestive passages, under the influence of an error in regimen, appeared to be the cause of the symptoms becoming worse, should bloodletting be attempted? Should we not take into account the diminution of strength as attested by the extreme weakness of the pulse? M. Lerminier did not think it expedient to take any more blood; he ordered two blisters to the legs. On the 30th, the tongue had become moist again. The first three days in May, it became dry again; the prostration of strength went on increasing; the alvine evacuations were involuntary; the pulse did not rise; the petechial spots continued; the intellects were intact. (Barley ptisan, sinapisms, broths, a small quantity of wine.)

On the 4th, aqueous infusion of quinquina sweetened with syrup of quince. From the 5th to the 12th this medicine was continued. During this time the strength of the patient was observed to improve, the purging was moderated, the features began to recover their normal state, the tongue and lips became moist and red, the tongue began to throw off the black incrustation with which it was covered, the pulse began to improve, and the petechiæ to disappear. On the 17th, the patient had scarcely any fever; he had had but one stool during the last twenty-four hours; but the blistered surfaces had a greyish aspect, and evinced a tendency to become gangrenous. They were covered with quinquina powder. This bark was continued internally till the 22d. The blisters soon assumed a red appearance and became dry. The patient was going on very well in other respects. At this time three small abscesses existed at the union of the right buttock and the thigh; they were opened, and a considerable quantity of good pus was discharged from them. They were cicatrised on the 28th. Still the pulse retained a slight frequency which seemed to survive all local lesion. On the night of the 28th a very profuse sweat came on. Up to this period the pulse had continued remarkably dry. On the 30th there was no sweat, but slight diarrhœa came on, which continued up to the 3d of June. The patient continued to improve, and left the hospital on the 5th of June.

The patient in this case was treated according to the antiphlogistic method, as long as the general signs of excitement continued. This method was at first successful. A relapse occurred in consequence of an error in regimen. Blisters then seemed to effect a useful revulsion on the intestinal tube; but they did not prevent the debility from increasing. As soon as the latter became the prevailing symptom, the quinquina was given. At the time we began to give the Peruvian bark, the patient was in a very alarming state, and during its use all the bad symptoms disappeared. The surface of the blisters seemed on the point of becoming gangrenous, when a tonic treatment was tried; the dark colour which caused us to apprehend it had disappeared during the internal and external employment of the quinquina. We have, however, so often seen this kind of treatment either fail, or prove injurious under similar circumstances, that we shall content ourselves, in this case as in several others, to look upon the employment of the tonic treatment, and the improvement of the symptoms as coincident, without establishing between these two facts the relation of cause and effect. Observe, however, how much has been published concerning the happy results of the employment of quinquina in typhoid fevers. If it were sufficient to count facts in order to decide a question, we should be but little embarrassed, for we might find at least as many of these facts in favour of the employment of quinquina as in favour of bloodletting. Read De Haen, see how many facts he relates, in which the petechiæ, prostration, involuntary stools, delirium, convul-

sive movements, subsultus tendinum, irregularity of the pulse, burning heat of skin, &c., disappear under the influence of this medicine.

Independently of the treatment, this case may afford instruction by reason of some of the phenomena presented by the disease. During the entire course of the disease, the skin continued very dry. No phenomenon which could be called critical had taken place, when convalescence already seemed to commence. Still the pulse retained a frequency, which seemed to indicate that no crisis had as yet come. Then several abscesses appeared, which the ancients would not have hesitated to consider critical. They would have found in this case the confirmation of an opinion of Hippocrates, who considered abscesses forming towards the termination of acute diseases as very favourable, particularly when seated in the lower extremities.

The ancients also said that abscesses most frequently did not appear till after other crises, when the latter had been insufficient or incomplete. Here, on the contrary, it was the first phenomenon which appeared ; the rapidity of their development and of their termination would have been considered as the sign of a favourable crisis.

Scarcely were these abscesses closed, when the skin became covered for the first time with a profuse sweat, and it was only after the new crisis that the pulse entirely lost its frequency. This sweat appeared towards the fortieth day. This fact would be calculated to confirm Huxham's assertion, who stated that he had never seen any typhoid fever accompanied by a perfect crisis, before a sweat more or less profuse had supervened. But in how many other cases have we not ascertained a favourable and complete termination of these diseases without any sweat having appeared? The physicians of preceding ages would have considered as a third critical movement, the diarrhœa which appeared on the 30th of May, two days after the appearance of the sweat. Guided by the aggregate of the favourable circumstances which preceded, accompanied, and followed the establishment of this diarrhœa, they would unquestionably have made reference to it. The first of the cases placed by Ræderer and Wagler after their general history of mucous fever, presents to us the well marked example of a continued fever, which ceased on the 14th day, at the same time that a purging set in ; from this time the febrile disturbance no longer appeared.

The petechiæ which existed at the time of the patient's admission, disappeared in a great measure after the abstraction of blood. The disappearance of those spots coincided with a perceptible amendment in the general and local symptoms ; and when on the next day they again appeared, their reappearance did not seem to exercise the least influence.

Case 71.—Residence in Paris, of a recent date—At the commencement, pain in the epigastrium ; loss of appetite ; then adynamic symptoms ; tongue black ; petechiæ ; last degree of prostration, &c.—Successive employment of bloodletting, blisters, camphor, quinquina, and calomel—Amendment slow.

A young man, 20 years of age, of a delicate constitution, and scarcely presenting any signs of puberty, had been residing in Paris for about a year. Since that period he had been in great want, and was badly fed. Still his health was tolerably good till the beginning of November. He then began to feel an habitual pain in the epigastrium ; his appetite was lessened, his strength was evidently sinking. He continued however to remain at the corner of the streets, exposed to all the inclemencies of the weather. It was only the last two or three days he was obliged to keep his bed ; he entered the Charité on the 29th of November, and on the 30th presented the following state : —

Face emaciated, yellowish, expressive of dejection and distress ; eyes heavy ; evident commencement of prostration ; answers distinct but slow. Some subsultus tendinum of the left hand ; tongue already dry and brownish at the centre,

but moist and of a cherry-red colour at the edges and apex; intense thirst, sensation of heat in the mouth; slight pain in the epigastrium on pressure; the rest of the abdomen soft, and free from pain; diarrhœa for the last two days only (five or six liquid stools in the twenty-four hours); pulse frequent and weak; skin hot and remarkably dry; breathing hurried, cough frequent and dry. This patient was far advanced in an adynamic state; the dulness of his eyes, his eyelids weighed down, his countenance expressive of distress, the difficulty of his movements, and above all the debilitating circumstances which had preceded his present state, all seemed to point out that the indication was to raise his exhausted strength; but there existed at the same time a twofold irritation of the lungs and alimentary canal. Should this be first combated? Might it not be apprehended, that, by neglecting it, it might concentrate the remainder of the patient's strength on the inflamed organs, and thus increase the general debility? But admitting the necessity of first combating this irritation, should we only endeavour to remove it by derivatives and irritating revulsives? had any effort been made to attack it directly by bloodletting? M. Lerminier determined to try what effect would be produced by the latter means. Twenty leeches were applied to the anus: they bled profusely; no perceptible change came on in the course of the day. In the night the patient became delirious. On the morning of December the 1st, the intellect was sound; but the air of stupor was still more marked than on the day before. The abdomen was covered with numerous red spots, of a pale red colour. The state of the tongue was not changed; he had had only one stool. The pulse was very weak, regular, and 112; the respiratory movements were twenty-nine in the minute. Cough still continued. Subsultus increased.

The derivative bleeding from the anus seemed to have diminished the intensity of the inflammatory symptoms of the chest and abdomen; but the debility of the patient went on increasing. The delirium and subsultus indicated at the same time an exaltation, or, more properly speaking, a perversion of the functions of the nervous system. However, if these different symptoms, as also the prostration, had been the result of inflammation of the digestive passages, should not the evident diminution of the latter have been accompanied with a general improvement in the state of the patient? Now the patient was evidently not so well as the day before. Two blisters were applied to the legs. A camomile lavement was given, with the addition of twelve grains of camphor. Nothing was directed to be taken internally but barley ptisan, acidulated with tartaric syrup. The night was more tranquil than that preceding it.

Dec. 2. The air of stupor was diminished; the tongue was moist and red; the abdomen soft. The lavement was not returned. The subsultus and petechiæ were increased. Some petechiæ on the chest. There was an evident improvement, which might fairly be attributed to the plan of treatment. The patient took in the course of the day a second camomile lavement, with the addition of twenty-four grains of camphor. In the evening his legs were covered with sinapisms (barley ptisan sweetened). At this time the lavement was returned a little time after it had been taken. The patient raved a great part of the night. On the 3d, though his answers were distinct and precise, still he was heard to speak aloud from time to time, and rather incoherently. The adynamic state went on increasing; the tongue again became brown; skin still dry (mineral lemonade, two more blisters to the thighs). At three in the afternoon a general and profuse sweat took place. Still the state of the patient, far from being improved, appeared worse on the next day than ever. The countenance was cadaverous, tongue black and dry, as also the teeth and lips; the abdomen became swollen; no purging. The breathing was again hurried: the pulse could scarcely be felt; the ideas became disturbed at intervals (aqueous infusion of quinquina with oxymel, camomile lavement with twelve grains of

camphor; six packets of camphor and nitre,* mineral lemonade, one cup of wine). On the 5th he was in the same state; the same prescription was ordered. On the 6th he no longer seemed to understand the questions proposed to him. He pronounced with hesitation some unintelligible words. The petechial spots continued; the respiration had now become slower.

On the 7th and 8th nothing new occurred. The patient seemed to be reduced to the last stage of prostration. Death appeared close at hand (the same medicine continued). On the 9th, twelve grains of calomel were given to overcome the constipation; he had one stool. To his other drinks we added a decoction of polygala, sweetened with syrup of orange-peel. The pulse, which was very small, was extremely irregular. From the 9th to the 13th the petechiæ disappeared. The strength seemed to rise a little. On the 14th the aspect of the face was more natural, the eyes had more expression, the intellect was not so dull, articulation was easier; the tongue, which was moist, was brown only at the centre; he could put it out of his mouth with considerable facility, which he could not do on the preceding days. A slight purging existed (some broths were now allowed). During the night of the 16th he was extremely agitated, and some convulsive movements took place. From the 17th there was a progressive improvement, which was slow however; this was accounted for by the occurrence of a purging, which continued for a considerable time, and which did not appear till the time nature seemed commencing to proceed towards a cure. The aqueous infusion of quinquina was continued till the beginning of January. At this time the countenance of the patient was very much improved; he was gaining flesh, and had a great appetite. He left the hospital on the 15th, perfectly recovered.

Here is a case in which a patient, whose state was almost desperate at the time he began to take tonics, was restored to health according as he took the quinquina, polygala, camphor, wine, &c. During the employment of these remedies we saw the tongue become moist, the skin lose its burning heat and dryness, the intellect recover its clearness, the convulsive movements disappear, and the strength return. And yet how very unfavourable the prognosis was! The countenance was for several days that of a man in the last agony, and experience has proved that this state of the countenance is almost always fatal. We may here say, with Hippocrates, *In acutis morbis non omnino tutæ sunt prædictiones, neque mortis, neque sanitatis.*

We read in Grant (*Researches on Fever*) a case calculated to prove that certain individuals carry with them a peculiar disposition to adynamic symptoms, from the moment they become affected with any disease whatever, though not very violent. The subject of this case is a young girl who, two years after having had typhoid fever with epistaxis and petechiæ, was inoculated at the same time with her brothers and sisters. In the latter the variola which supervened terminated favourably and mildly. In the young girl, on the contrary, the cuts in the arm were observed to become livid, to puff up, and exhale a bloody sanies. On the seventh day numerous petechiæ appeared, and there were observed all the symptoms of a putrid fever, which complicated the variolic eruption, and interfered with its course. Is it to be supposed that in such a case we should have recourse to an antiphlogistic mode of treatment? Nothing was more variable during the entire course of the disease than the state of the respiration. We found it from one day to another easy or painful, slow or very much hurried. M. Lerminier at first apprehended the existence of inflammation of the pulmonary parenchyma; but these rapid alternations soon appeared to him entirely connected with the state of the nervous system. This

* Each packet contains six grains of camphor and six of nitre. One is given every third hour.

was not the only time we observed a similar disturbance of the respiration in individuals affected with bad typhoid fevers, and after death we found the lungs perfectly healthy. In other patients, on the contrary, whose breathing had always been very easy, the *post-mortem* examination discovered pneumonia to a greater or less extent.

Is it not also a very remarkable phenomenon, however usual in other respects — I mean the excitement of the nervous system, as attested by the delirium, subsultus, &c., whilst the other systems were in a state of debility? It is thus that, in severe hemorrhages, we see patients, though exhausted by the enormous loss of blood which they have suffered, die often in the midst of convulsions more or less violent. Did the camphor in this case contribute to calm the excited or perverted action of the brain and its appendages? We may observe that an evident improvement succeeded the administration of the first camphor lavement, which was all retained, whilst the symptoms partly reappeared after the second lavement, which was partly returned.

If the physiological action of camphor is well ascertained, such unfortunately is not the case with its therapeutic properties. The histories of poisoning by camphor in the human species, and experiments made on living animals, tend equally to prove that this substance stimulates the brain very much, and yet it is often prescribed for the purpose of calming the nervous system. At other times it is, to be sure, administered under the title of a diffusible stimulant. What contradictions! Is camphor often effectual only in as much as it opposes one stimulation to another, by changing the mode of action of the nervous system; as several medicines called antipasmodic seem to do? Again, has camphor, like several other substances, a different action according to its different doses? If we consult authors we shall find them very little agreed among themselves. Thus Cullen tells us, that after having administered camphor a great number of times, he was not yet certain whether this medicine was useful or injurious. Hoffmann is more positive; he considers camphor combined with nitre as one of the best medicines that can be given in all cases of malignant fevers. I am inclined to think that it is with camphor as with digitalis. If the researches of a great number of medical men with respect to the therapeutic properties of these substances have oftentimes led to the most opposite results, it is because the observers have not pointed out with sufficient precision under what combination of circumstances they had used them. Neither has sufficient regard been paid to the differences which camphor must present in its mode of action according to the state of the organs, and the temperaments and dispositions of the individuals. We have observed, for instance, in some persons possessed of great nervous susceptibility, a peculiar kind of stimulation made on the brain by camphor. These persons, after taking camphor in the form o lavement in rather a moderate dose (twenty to thirty grains), felt themselves suddenly possessed of extraordinary lightness; they fancied themselves going to fly, according to the phrase adopted by them all. This singular effect, of which I myself have seen an instance in a young Englishman, lasted for some hours, and gradually disappeared.

The petechiæ in this case were very numerous. They appeared before any species of stimulant treatment had been employed. It was not the latter then that produced them, as was supposed by De Haen.

Case 72.—Residence in Paris, of a recent date—At first symptoms of what may be called inflammatory fever; delirium after bloodletting—Subsequently symptoms usually called bilious; tartar emetic; on the day after the administration of the latter medicine, severe symptoms resembling those of an attack of typhoid fever; return of this attack on the following days: quinquina at first given as anti-periodical, then as a tonic.

A young man, eighteen years of age, of rather a delicate constitution, light

coloured hair, and flaccid muscle, always enjoyed rather good health ; he was a resident in Paris for about three months, and was not subject to any privations. May 11th, without any known cause, he felt on awaking a state of general illness, and some pain of head ; there was a bitter taste in his mouth. In the course of the day he had some shivering. On the 12th he was confined to bed ; 13th, entered the Charité ; and on the 14th he presented the following state : —face and conjunctiva injected, skin halitneuse, pulse frequent and full, tongue whitish, red at the apex, not much thirst, abdomen soft and free from pain, one stool of good consistence in the twenty-four hours. This person presented a group of inflammatory symptoms, which called for bleeding. In localising the disease one might consider it gastritis, and from this derive all the other symptoms as so many sympathetic phenomena. He was bled copiously ; barley ptisan with oxymel was prescribed. The blood drawn from the vein united into a large clot of but little consistence, and greenish on its surface. During the day the state of the patient continued nearly the same ; he had some nausea. In the night his sleep was disturbed by the most incoherent dreams ; he had but one stool.

On the morning of the 15th the fever still continued, tongue not so red (thirty leeches to the anus). In the night the patient was very much disturbed, and was in a state bordering on delirium. On the 16th he complained of an intolerably bitter taste, he had frequent nausea and but little thirst ; the tongue was covered since the day before with a thick yellowish coat ; there had been no stool ; the red tint of the cheeks contrasted with the yellowish tint of the parts around the alæ nasi, the lips, and the conjunctiva ; the pulse was constantly very pregnant and full, skin hot and dry. Thus the state of the patient had undergone a perceptible change since the day before. The decidedly inflammatory symptoms of the preceding days was now succeeded by that combination of symptoms usually called bilious. M. Lerminier prescribed two grains of tartar emetic in a pint of veal water ; but as the fever was still high, he ordered the application of thirty leeches to the anus previous to the emetic being taken.

The patient did not vomit, and went but once to stool. On the next day, the 17th, the tongue, divested of its yellowish coat, had resumed its red appearance ; his state was the same in other respects (barley tisan, with oxymel). In the evening the patient, who had passed the day tolerably well, was attacked with violent shivering and great dyspnœa. At eight o'clock the shivering no longer existed ; but the patient, devoured by a burning heat, was now in an extreme state of prostration ; it was only at intervals he answered questions, and at intervals he was completely delirious. The respiration was high and hurried, the pulse small, concentrated, and irregular ; great subsultus in the fore-arms. Thus the patient had suddenly passed from a state not at all alarming to one which was considered as hopeless by those who saw him in the evening. However, on the morning of the 18th, we found him not so bad. The respiration was more free ; the strength was raised ; the intellect was again clear, the subsultus tendinum was less ; the pulse, which was regular, retained its smallness ; the countenance was still expressive of great depression, the skin was covered with a gentle moisture ; the abdomen was tympanitic, no stool had taken place ; the bladder, distended by an enormous quantity of urine, projected considerably above the pubis ; we were obliged to draw off the urine ; a blister, made with a mixture of liquid ammonia and axunge, was applied to each thigh. He was in the same state up to the 19th, at six in the evening. Then there was a return of the same symptoms as on the 17th, but with much greater severity. At nine o'clock the patient seemed as if struck with apoplexy ; there was total loss of consciousness ; the eyelids remained depressed over the eyes ; when they were raised, the globe of the eye, which was fixed and immoveable, seemed insensible to the impression of light ; the nostrils were

forcibly dilated at each inspiration, and each expiration was accompanied with a passive dilatation of the cheeks; the tongue, which was perceived at the bottom of the mouth, appeared dry and brown at its centre; the abdomen was very tympanitic; the pulse was so frequent that it could not be counted. On the next day, the 20th, there was an amendment similar to that which we had already observed on the 18th, the patient had recovered his consciousness, but he still retained a very remarkable air of stupor; as on the 18th, the skin was moist. This periodical return of the same symptoms under the tertian type, the shivering which ushered in their invasion, the moist state of the skin which became manifest according as the severe symptoms subsided, might incline one to suspect the existence of a pernicious remittent fever. The second attack had been more violent than the first; there was some reason to apprehend that the third would prove fatal.

On the 21st, the day on which the third accession should show itself, twelve grains of sulphate of quina were given by the mouth, ten hours before its expected invasion, and one ounce of powdered quinquina, in the form of lavement. In the evening the paroxysm did not return. However, the patient was far from being out of danger; the adynamic state was more and more marked; the black colour of the tongue had progressed; considerable purging set in; the quinquina was still continued in the form of lavement, in the dose of half an ounce every day up to the 25th, with the view of preventing any return of the fit. Since the 20th the surface of the blisters had taken on a brownish tint, and on the 23d they were covered by a large eschar. The paralysis of the bladder still continued, and the urine was drawn off by the catheter. On the 25th, the tongue, lips, and teeth were covered by a thick black crust; the abdomen was very much distended; five or six liquid stools were passed in bed. There was at the same time an acrid heat of skin, great frequency and smallness of the pulse, which was easily compressed; a well marked air of stupor; great dulness of the intellectual faculties; total loss of memory; extreme muscular debility; eschars on the blistered surfaces, on the sacrum, and on the great trochanter of the left side; paralysis of the bladder. We no longer apprehended a return of the paroxysm. In this state of things should our attention be directed only to the palpable inflammation of the alimentary canal, and should we order merely demulcent medicines? Should we rather consider the general state of the strength, the real absence of which seemed to be indicated by several of the symptoms? Should we admit with Brown, that the period of general excitement had been succeeded by a period of collapse; or say with M. Broussais that the strength was not really absent, but that it was concentrated on the digestive tube? Even admitting this latter opinion, would we have been warranted in rejecting tonics and excitants? Are there not several cases of external inflammations, where tonics are employed with advantage, as well internally, as on the inflamed surfaces themselves? M. Lerminier prescribed a camomile lavement with the addition of five drops of essential oil of juniper; citric lemonade for his drink; some broths, a pint of decoction of polygala; another pint of decoction of two drachms of angelica root, with the addition of two ounces of syrup of violet. It is known how much Hildenbrand cried up the beneficial effects of angelica root in typhoid fevers; he preferred it as less expensive, and at the same time as more effectual than contrayerva and seneka root. Embrocations of camphorated oil of camomile were applied over the abdomen; twenty-four hours after this treatment was commenced there was a most evident improvement in every respect; on the 27th, the aqueous infusion of quinquina was substituted for the decoction of polygala, and mineral for citric lemonade. From the 28th of May to the 6th of June, a rapid improvement took place in all the symptoms. During all this time, however, there was no sweat, nor any phenomenon which could be considered critical. On the 6th of June every thing promised speedy restoration, except the ulcer on the great trochanter, which was every day

enlarging; the profuse suppuration from it prevented the patient from recovering strength. The aqueous infusion of quinquina was replaced by six ounces of quinquina wine. Innumerable cases attest the beneficial effects of this substance in all cases of profuse suppuration, without much general reaction. De Haen in particular has noticed the advantages of it (*Rat. med., pars undecima, caput primum*). The quinquina wine was continued in the dose of from six to eight ounces every day during the month of June and commencement of July. The ulcerations ceased to extend, all febrile symptoms gradually disappeared, and the suppurations from the ulcer on the great trochanter being very inconsiderable, the quinquina wine was suspended. On the night of the 15th of July, from eight to ten varioloid pustules appeared on the buttocks. On the next day some were observed on the arms and face. Having been red and conical at first, they were already white about thirty hours after their appearance; four or five of them were depressed at their centre. Some of these were remarked to be confluent in the lumbar region; at the end of six days they were all dried. The eruption was not accompanied by any febrile disturbance; it resembled varicella very much. The patient bore the marks of having been vaccinated. During the last fifteen days of July the feet became œdematous. This passive infiltration was combated by the bitter diuretic wine of the Charité, and disappeared according as the strength returned. He went out on the 6th of August.

We have endeavoured to point out, in the course of this case, the circumstances which rendered it remarkable. We saw that the inflammatory symptoms which existed at the commencement were met by repeated and copious bleedings; that at a later period an emetic was administered, which produced no evacuation; and on the following day an exacerbation showed itself for the first time, which gave to the disease the character of a pernicious remittent fever. The second exacerbation was still more alarming; the quinquina was then given with success. I shall not here inquire how the good effects of the quinquina in this case can be explained; I merely state the fact, remarking that innumerable instances of analogous cases are to be found in books. Would the same success have been obtained if gastro-intestinal irritation had played the principal part in the group of frightful phenomena which characterised the attack? The onset of the disease was probably in this irritation, but certainly the entire disease did not reside in it. When there no longer remained anything but the symptoms of a most severe adynamic fever, it was still a highly tonic treatment that was opposed to these symptoms; during this treatment, the tongue, which was dry and black, soon returned to its natural state. When profuse suppuration was exhausting the patient, it was by means of quinquina, given in large doses, that the strength was kept up. We should here remark the varioloid eruption and the œdema, which came on during convalescence: this œdema, the result of general debility, disappeared as the strength was re-established.

CHAPTER III.

RECAPITULATION.(*)

ARTICLE II.

ETIOLOGY.

Are there certain causes which may be considered, with some reason, as having produced the diseases of which the preceding cases afford instances?

* This recapitulation more particularly concerns our cases of follicular enteritis.

Among the individuals who form the subjects of our cases, several had suffered great mental distress; others had been exposed, for a longer or shorter time, to all the hardships of want; being deprived of work, they had had but an unwholesome or insufficient food to live on: — some were distressed with labour; they had borne up against want of sleep for several nights; others had been guilty of frequent deviations from regular regimen, or had indulged in different species of excess; but in the greater number none of these influences had acted, — they had been always well fed; they had always worked without being fatigued, and they had never committed any excess. The results at which we arrived on this head agree with those obtained by M. Louis. He cites but a small number of cases in which bad diet was one of the circumstances which preceded the development of the disease. In some others excessive fatigue and mental distress had acted, but in the majority nothing proves at least that these different influences performed a part in the production of fever.

What we say of patients in the hospitals, we might also say of other classes of society. I shall take for instance our young medical students. Miasms, arising from the dissection-room, have been looked on as one of the causes which render typhoid fever so common in them; yet in a very considerable number of them I may assert that the disease manifests itself before they have frequented the dissecting-room. Bad diet and irregular habits have also been advanced as causes of sickness in these persons, and yet I have very often seen young persons affected who were well fed, and whose conduct had been very regular.

There is another circumstance, much more general, which may be observed in our cases, as well as in those of MM. Petit and Serres, Bouillaud and Louis, namely, recent arrival in Paris. Among the individuals who form the subjects of the preceding cases there are several who had been residing in Paris only for some weeks or months at the time they became sick. In general it is not at the commencement of persons' residing in Paris that the health becomes deranged; it is more frequently after a residence of from six to fifteen months. It is about this period that we have most commonly seen students in medicine or law attacked, as also young mechanics, who come to seek for admission into the several hospitals.

Yet whilst we admit that persons who have but recently arrived in Paris are more exposed than others to be attacked with the disease now in question, we do not intend to infer from this that it attacks exclusively persons of this class. We have cited a considerable number of cases of persons who had been residing in Paris for a great number of years, and who presented on the one hand the different symptoms of typhus fever, and on the other hand the particular lesion of the intestinal follicles. During the summer of 1829 we saw, at the Central Bureau, a considerable number of individuals who presented all the symptoms of typhoid fever in different degrees of severity, and one-third at least of these persons had been residing in Paris for several years. We have seen this same disease attack medical students who had been living in Paris for five or six years.

Is typhoid fever. when once developed, capable of being propagated by contagion? In latter times Dr. Bretonneau, M. Gendrin, and some other medical men, have maintained that dothinenterite was a very contagious disease: we do not deny the facts cited by these writers; but what we confidently assert is, that in Paris, either in the hospitals or out of them, we never recognised in this disease the slightest appearance of a contagious character. In the hospitals we do not see it transmitted from the individual who brings it from without to those who are lying in the beds next his own; neither do we see that the patients who lie in the bed previously occupied by a person who has either recovered

from, or has died of a dothinenterite, are attacked by it. Neither are the physicians or medical students who come there attacked with it, more particularly those who have had to come in contact with patients labouring under the disease. Out of the hospitals what circumstances are more favourable to contagion than those generally found combined in the case of medical students who attend their companions when affected with typhoid fever? Shut up in a room, which in general is very small, they pay them the most assiduous and devoted attention night and day; if the affection were contagious, almost all of them would contract it, and yet we do not remember to have seen the disease even once arise in this way in a healthy individual. We have frequently inquired whether the bed or room occupied by a patient affected at the time had been recently occupied by others who had also had dothinenterite, and we found that this occurred but very rarely; so that we were then at liberty to suppose, that if two individuals attacked with one and the same species of disease had succeeded each other in one and the same place, it was nothing but mere chance.

Persons of the most opposite constitutions are equally affected by the disease in question. It would be a great mistake to suppose that it attacks, in preference, persons of a delicate constitution, whose blood is impoverished, whose muscular system is but badly developed, and in whom the lymphatic temperament seems to predominate. Far from it. The disease appears probably more generally in persons who are of a florid complexion, whose muscular system is well developed, and appears to indicate considerable strength. It is frequently in such persons that, after a few days' illness, an adynamic state is seen to supervene, which does not appear to be always the result of mere oppression of the strength, so that it must not be supposed that what is called *force of vital resistance* is always accurately indicated by the state of the muscular system; it is represented much more by the activity of the nervous system; and this activity is very frequently in the inverse ratio of the apparent energy of the locomotive system.

In this respect the observations made by MM. Bouillaud and Louis are entirely confirmatory of our own. Among the persons whose cases we have given there are several who presented all the traits of what is called the sanguineous temperament; several had a brown skin, and the appearance of great muscular strength; they seemed to have considerable embonpoint, and their nutrition did not appear to have at all suffered.

All ages are not equally exposed to present the different groups of symptoms which characterise continued fevers. The result of our own observation, as well as that of other authors, is, that they are most common from the age of twenty to that of thirty. From thirty-five to old age they become more and more rare: then, after the age of seventy, we find adynamic fever to appear again. It is in the midst of the symptoms which characterise it that a considerable number of old persons die, those particularly who, till then, had enjoyed good health, and who seemed to have worn out their vital energy by little and little, without there having been any deep-seated lesion of any organ in them.

Old persons, then, as well as young, present rather frequent instances of adynamic fever. But in them the organic lesions, of which this fever is either the effect or the complication, are not always similar to those observed at a less advanced period of life. Thus, in young persons, out of ten cases of what is called adynamic fever, there are nine at least in which the principal lesion found in the dead body is a dothinenterite. In old persons, on the contrary, dothinenterite is uncommon; but, in its absence, symptoms exactly similar to those which it produced in youth appear with the greatest facility in consequence of any other lesion, whether of pneumonia or simple erysipelas, or a slight phlegmon, or disease of the urinary passages, &c. Their tongue becomes dry and

black, without there being in them any intestinal lesion appreciable after death. Here, then, is a case where the symptomatic form of a disease remains the same, though there is no longer any identity in its anatomical form.

ARTICLE II.

OF THE STATE OF THE DIFFERENT ORGANS AFTER DEATH AND DURING LIFE.

DIGESTIVE TUBE.

First—Lesions found after Death in the Digestive Tube.

We have to examine these lesions with respect to their constancy, their frequency, their seat, their nature, their intensity, and, lastly, with respect to their connections with the symptoms.

A.—Constancy of the Lesions of the Digestive Tube.

Every time an individual has died of one of the morbid groups, which characterise one of the essential fevers described in the *Nosographie Philosophique*, do we find the digestive tube diseased in the dead body? Facts answer this question in the negative. If the cases given by us in reference to this point be consulted again, there will be found instances of what are called adynamic or ataxic fevers, in which the digestive tube did not present, after death, any kind of appreciable lesion. M. Bouillaud has cited similar cases. The first case in his *Traité des Fièvres* gives the history of an individual who died rapidly with all the symptoms of intense inflammatory fever (*febris ardens*, or *causus* of the ancients), and in whom no other lesion was found in the digestive tube except some streaks of a deep red colour towards the splenic extremity of the stomach; but observe, the *post-mortem* examination took place during the heat of July, more than twenty-four hours after death, and persons versed in the study of pathological anatomy know full well that, if the body of a person who has died of an acute disease under such circumstances be opened, nine times out of ten a similar state of the stomach will be found.

In the twenty-fourth case of the same work there is mention made of a person who, five days after having suffered comminuted fracture of a limb, died with all the symptoms of what is called putrid or adynamic fever. There was no morbid change discovered in the digestive tube; neither was there any lesion in this tube in the persons who form the subject of the twenty-sixth, twenty-seventh, twenty-eight, and twenty-ninth cases, and who, being attacked with different local affections (erysipelas, external gangrene, phlebitis, &c.), also died with the symptoms called adynamic, and particularly with dry tongue, and teeth covered with black sordes.

M. Louis, who considers lesions of the intestinal follicles as the anatomical character of typhoid fever, has, however, published some cases in which neither this lesion, nor any other worth remarking, was found in the digestive tube in persons who, during life, would certainly have been considered by the Pinel school as labouring under adynamic fever. Thus, in the fifty first case of his work, M. Louis thus describes the state of the digestive tube of an individual who died on the eleventh day of a disease, during which he presented the following symptoms, viz., delirium, stupor, meteorism, involuntary stools, his tongue being at first dry and râpeuse, then black and incrusted.

"The gastric mucous membrane was of a greenish tint, very slightly soft-

ened, its thickness being proportioned to its size. The small intestine was moderately distended with gases, and contained a little yellow bile and mucus. Its mucous membrane presented the same colour in some points, and was in general whitish, of a natural thickness and consistence, except in the four last feet of the ileum, where it was a little softened, all the elliptical patches were healthy. The large intestine contained some fæces; its inner membrane was greenish or yellowish, and, except that, perfectly healthy. The mesenteric glands were very small."

The individual whose history is detailed in the 52d case of M. Louis's work presented, still more than the preceding, the combination of all the traits of what is called putrid, ataxo-adynamic, or typhoid fever; or, if it be preferred, of dothinenterite. At the onset there was loss of appetite, vomiting, diarrhœa; then intense pain of head, delirium, coma, great muscular debility, eschars on the sacrum, spots, as it were scorbutic, on the skin, involuntary stools, meteorism, clammy dry tongue, yet the following is the state in which the digestive tube was found: —

"The stomach, of moderate size, contained a little bile and some mucus; its inner surface was slightly spotted with red through its entire extent; the duodenum was healthy; the mucous membrane of the small intestine was pale, and perfectly healthy through its entire length; the same may be said of the elliptical patches of the ileum, all thin, white, or slightly speckled with grey, as is observed in the natural state; the mucous membrane of the large intestine was white, softened in the right colon; then it increased all at once in consistence; the mesenteric glands were pale, small, and healthy."

At the commencement of the year 1829, M. Dalmas examined in the Charité the body of a person, fifteen years of age, who had been considered as labouring under typhoid fever, and whose digestive tube was found perfectly healthy.

Dr. Martinet met a very remarkable case in the Hotel Dieu, in which, to explain the symptoms of the ataxo-adynamic fever of Pinel, nothing was found but softening of the liver, and nothing in the digestive tube.

Dr. Neumann, physician of the Charité at Berlin, did not appear to be acquainted with the works of M. Bretonneau on Dothinenterite, when, in 1816, he published a paper on a species of fever which he considered as prevailing every year epidemically in Berlin, and which he compared to typhus. The general description which he gives of it is what might be drawn up by combining what our own cases present in common with those of MM. Petit, Bouillaud, Louis, etc. In those who died, M. Neumann says he found, towards the termination of the small intestine, patches and ulcerations; in a word, that group of lesions which constitute our intestinal exantheme, or the dothinenterite of M. Bretonneau. Still, though these lesions may have been met with by M. Neumann in the majority of the cases, there are some in which he did not find them; there was, on the inner surface of the intestine, merely a slight injection of the capillaries; sometimes even this injection was absent, and in the *post-mortem* examination presented no trace of disease in the digestive passages.

In the febrile disease, which is endemic in several parts of Great Britain, and which, in its symptoms, bears the greatest resemblance to our continued fevers, there have been frequently found, within the digestive tube, alterations similar to those presented to us in the greater number of our cases. However, in some cases, Dr. Alison, of Edinburgh, to whom we are indebted for an excellent description of this disease, states, that he had not met with either exanthematous patches, ulcerations, or any other lesion in the digestive passages. We are bound to place so much the more confidence in the researches of this physician, as, at the time he was engaged in them, it was after leaving Paris, where he had been present at several *post-mortem* examinations of persons who died of typhus fever, and because, at Edinburgh, he examined several bodies, expecting to find

these same patches, these same exanthemes, and this same redness, which he had seen at Paris, and of which he had read the description in French works.

On comparing with these facts, seen by different persons and in different places, the facts which we have ourselves collected and cited in all their details in our cases, we think ourselves warranted in laying down the following proposition : —

In the pyrexiæ which constitute the different morbid groups designated in Pinel's Nosographie by the name of essential fevers, we do not always find, after death, lesions in the digestive tube.

Whence it follows that several of these morbid groups may have an existence independent of that of a gastro-intestinal affection.

B.—Frequency of the lesions of the digestive tube.

If these lesions are not constant, are they at least so frequent, that, in consequence of this frequency, they acquire nearly as much importance as if they were never absent?

Since M. Broussais has called the attention of medical men to the state of the digestive tube in fever, innumerable facts have shown that, in almost all the cases where the body of a person who died during the course of what is called an essential fever was examined, the digestive tube was found to be diseased. Our own observation fully confirms these results, which may be expressed in the following terms :

In the pyrexiæ which constitute the different morbid groups designated by the name of essential fever, lesions of the digestive tube are found very frequently after death, ninety-eight times out of one hundred.

Whence it follows that lesions of the digestive tube perform a very important part in those diseases, and that they should be taken into consideration, whether the question be to ascend to the nature of these fevers, or to determine the treatment to be employed. The frequency of intestinal lesions in fever has so convinced us of their importance, that, though we know them to be sometimes wanting, and also that, when they do exist, they cannot explain everything, still we thought it right to speak of fevers in the portion of our *Clinique* especially dedicated to diseases of the abdominal organs.

C.—Seat and nature of the lesions of the digestive tube.

The digestive tube, examined from the cardiac orifice of the stomach to the termination of the rectum, is not found altered with equal frequency in its different parts in persons who die during the course of continued fevers.

a.—Stomach.

In several subjects we have found this organ exempt from all appreciable lesion. It was very white through its entire extent ; some few veins merely were marked beneath its mucous membrane. This membrane, as well as the other tunics, were everywhere of the natural consistence ; neither were they thinner nor thicker than in their normal state.

In other subjects, and these were more numerous than the preceding, the inner surface of the stomach presented in some points red spots, resulting from the aggregation of a number of small vessels minutely injected. Sometimes the spots, when combined, occupied a space scarcely large enough to hold from a five to a forty sous piece ; sometimes, and this latter case was more uncommon than the preceding, one-third, or even one-half, of the stomach presented this kind of injection.

At other times the inner surface of the stomach was found generally injected, this injection, however, being but slight.

This injection was observed more frequently towards the great cul-de-sac than in the other parts of the stomach.

In some cases we found the red tint replaced by a brown slate-colour or yellow tint. In a very inconsiderable number of cases we have detected the existence of ecchymoses of small extent in the submucous cellular tissue; these ecchymoses were found more particularly to occupy the splenic portion of the stomach.

Two or three times we found considerable increase in the consistence of the gastric mucous membrane; but we very frequently observed considerable softening of this membrane. This softening was not equally frequent over all parts of the stomach; whilst it was very rarely met in the pyloric portion, or on the anterior or posterior surfaces of the stomach, it was found to be a very common lesion in the great cul-de-sac. With respect to its colour, it presented three varieties, a white, a grey or brown, and a red.

In one case only this softening was not confined to the mucous membrane; all the coats had been affected with it; the slightest force was sufficient to tear them; in several points also the mucous, cellular, and muscular coat, had disappeared altogether; and the parietes of the stomach consisted on these points merely of the serous membrane, which was itself become very friable. This remarkable softening existed also without redness, or any other unusual colour.

On one occasion the mucous membrane of the stomach presented a great number of ulcerations, all similar in form and size; and another time we found the stomach completely perforated in its splenic portion.

The substances contained in the stomach rarely presented to us any peculiarities worth remarking. In general it contained nothing but the drinks swallowed by the patients, and some gases. We have never found any very great quantity of mucus in the stomach, and it was but in very few instances it contained any bile. In an individual who a few hours before death was seized with profuse black vomiting, the inner surface of the stomach was covered with a substance similar to that of the vomit; this appeared to be nothing but blood changed in its colour and in some of its properties by its stay in the stomach.

The natural size of the stomach we very rarely found changed. Two or three times only we found it so contracted towards the pyloric portion, that in this part it scarcely equalled the small intestine in size: in this case the mucous membrane was not more diseased than in other cases where no such contraction existed.

Such are the different states in which we found the stomach of persons who died during the progress of continued fevers. In all this there is nothing peculiar, nothing which is not found in the stomachs of persons who may have died of any other disease. In a great number of bodies we find these injections, these red and coloured appearances, these ecchymoses, and softenings, without there having been during life any symptoms resembling the symptoms of what are called essential fevers; these morbid changes do not belong more to acute than to chronic diseases; several too may be justly considered as a purely cadaveric result. With respect to the ulcerations which we once found in the stomach, and the perforation once observed by us in this organ, such morbid changes are also met in other diseases, nor can they explain the symptoms, except for the very cases in which they have been observed.

What we have just now said is confirmed by the result of M. Bouillaud's cases, as also those of M. Louis, who have found in the stomach alterations in no way differing from those which we have just described.

From these facts we feel warranted in laying down the following propositions: — 1. The stomach is found healthy in a considerable number of persons who die during the progress of what is called essential fever, whatever may have been the symptomatic form of this fever.

2. The changes found in the stomach of persons who die during the progress

of this fever have nothing peculiar, nothing which can constitute their anatomical character.

3. These changes differ not from those discovered in the bodies of persons who have died of any other disease, whether acute or chronic.

4. They are met with nearly equal frequency, both in those who have died during continued fever, and in those who have died of a different disease.*

5. Every fever called essential is not necessarily the product of gastritis.

6. The traces of gastritis found on opening bodies cannot always suffice to explain the different morbid groups called essential fevers.

7. Before placing the cause of these diseases in an inflammatory state of the stomach, it would be necessary to commence by deducting from that which may characterise this inflammatory state the different changes which may be owing to any other cause than a process of irritation, and several of which are not formed till after death.† It would be then found that the number of the cases wherein one may refer the fever to a gastric inflammation becomes less considerable than one would at first be inclined to think.

8. There are, however, cases where acute gastritis should be considered as the onset of typhoid fever.

b.—Small intestine.

The morbid changes of the small intestine, considered with respect to their seat, are found so much the more numerous according as this part of the digestive tube is closer to its union with the large intestine.

Thus we have very seldom found the duodenum affected. It was but in very rare cases also, that the rest of the large intestine in its upper four-fifths presented any lesion ; on the contrary, it is in the lower fifth of this same intestine that we have found the most constant and marked lesions in persons who die during the course of a continued fever.

Let us now pass in review the different states in which this intestine is found.

1. The healthy state. This is the most uncommon occurrence ; some of our cases show, however, that the small intestine may present no sort of morbid change after different kinds of fever.

2. A state healthy at the time of the *post-mortem* examination, with traces of a disease which terminated recently.

In some of our patients who died of any affection during convalescence from a bad fever, we have found on the inner surface of the termination of the small intestine either the aggregated crypts, or Brunner's follicles, much more apparent than usual ; each of their orifices was marked by a greyish point ; in other respects they presented no morbid appearance. We thought it possible that this unusual development of the follicles depended on their having been affected some time before death, during the very course of the fever ; we examined them at a time when they were returned to their normal state.

In other patients, who also died during convalescence, it was no longer these follicular patches that we observed ; but, in the place where they usually exist, a close examination showed us that the mucous membrane, far from being thickened, was, on the contrary, thinner than in the intermediate points ; there were no longer villi to be observed there ; there was only found there a thin, and, as it were, cellulo-vascular layer, which seemed to be mucous membrane reduced to its most simple state. It appeared to us that there was a newly-formed membrane there, which had just taken the place of cicatrised ulcers.

3. The erythematous state.

* The researches which have led us to establish this fourth proposition are entirely confirmatory of those of M. Louis.

† See, on this point of doctrine, our work on Pathological Anatomy.

All the shades of vascular injection which have been found in the intestinal mucous membrane* were presented to us in the diseases now under consideration. It is principally towards the lower part of the small intestine that this injection is commonly observed. It sometimes exists as the sole lesion — a rather rare occurrence, but yet one of which we have met instances; sometimes it exists as a secondary lesion, around other morbid changes, of which we shall speak at another time.

There are cases where the surface itself of the mucous membrane is scarcely coloured, whilst the villi alone are very much injected. Dr. Scoutetten has lately directed our attention to this peculiar sort of injection, which we have seen more than once, and which he considers as much calculated to produce continued fevers, as lesion of the follicles.

4. The exanthematous state.

By this term we mean to designate that species of eruption which is found as a peculiar lesion on the inner surface of the termination of the small intestine, in persons who have died during the course of continued fevers, whether of a mild or severe form. Intestinal exantheme, very clearly pointed out by MM. Petit and Serres, described by us in the first edition of our *Clinique*, still better appreciated as to its nature by M. Bretonneau, traced out through all its varieties by M. Louis, constituted the first stage of the disease called dothinenterite by M. Bretonneau. It is unnecessary, at the present day, to attempt to prove that this exantheme is seated in the intestinal follicles. Should it attack those aggregations of cryptæ, known by the name of Peyer's patches, we find, in the lower fifth of the intestine, patches usually of an oval form, of variable size, and which form above the level of the mucous membrane a prominence of some lines; some are of a more or less bright red; others are grey, yellow or blackish, and then resemble eschars; others are of a dull white. They are sometimes harder than the mucous membrane surrounding them; sometimes, on the contrary, they are very friable, and readily reduced to a pulp. There are cases where the form, &c., of the follicles may be readily recognised on their free surface; their orifices are found, and these small bodies, whose form has only become more distinct by their increase in size, are separated by perceptible intervals, which are more easily penetrated by the rays of light. There are other cases where these follicles are no longer distinct, and where the entire patch merely resembles a homogeneous mass, whose elementary structure has ceased to be appreciable; then these patches can no longer be regarded as belonging to enlarged follicles, except in consequence of their form and seat.

It must not be supposed that these patches are formed solely by the enlargement of the follicles; very often beneath the latter we find the cellular layer itself very much thickened, and it then participates as much as the follicles in the production of the exantheme.

This exantheme may terminate in several ways. There are cases less numerous, however, than has been stated, where real gangrene seems to attack it; one or more patches then become detached like eschars, leaving an ulcer in their place. At other times, without there being any proof of the existence of previous gangrene, the exanthematous patch is destroyed in several points. Hence there are formed on its free surface several small ulcers, which enlarge and ultimately unite; and thus the complete disappearance of the exantheme is at length brought about. In other cases this exantheme has a different termination; it loses its redness, seems to become indurated, and now presents, on the internal surface of the intestine, merely patches of a duller white than the rest of the mucous membrane. These patches may continue for a longer or shorter time without producing any symptoms, or, at least, without being

* See Pathological Anatomy.

accompanied by those general phenomena which had at first coincided with their enlargement. This is the transition of the lesion from the acute to the chronic state. This exantheme may even terminate in simple resolution; then the patches forming it become gradually effaced, and in their stead we find only those oblong bands, with grey or black points, which we have already described in some of our particular cases.

There is another exantheme which is also observed on the inner surface of the small intestine, in the same cases as the preceding. Like this, it principally occupies the part of the intestine nearest to the cæcum; but, instead of appearing in the form of broad oval or oblong patches, it appears under that of papulæ separated from each other, red, grey, or whitish, of a conical form, most frequently presenting, on their summit, an orifice from which a mucous or purulent fluid is forced out by pressure. On examining a certain number of these papulæ, there are some found without any trace of orifice, whilst others, on the contrary, are found whose orifice, constantly enlarging, is changed into an ulcer, which, commencing at the summit of the papulæ, extends gradually to its base. Sometimes we find only some of these papulæ scattered in small numbers on the inner surface of the intestine; sometimes they are in immense quantities; and if they are at the same time depressed on their summit, as happens when they commence to ulcerate, there appears, on the inner surface of the intestine, an eruption which bears a very striking resemblance to small-pox.

Like the exantheme in patches, the pustular exantheme, which has been just described, has its seat evidently in the intestinal follicles. The difference in form between these two exanthemes depends solely on this circumstance, that the former consists of aggregated follicles, and the latter of separate follicles.

When we examine the small intestine of persons who have died a little time after having had a bad fever, it sometimes happens that, with or without the grey or black-pointed patches of which we have spoken, we also find traces of inflammation of the separate follicles (called *Brunner's Follicles*). There is then perceived, on the inner surface of the intestine, a greater or less number of small white or grey bodies, of considerable consistence, in the centre of which there is found a blackish blue point. Who could avoid recognising in these bodies follicles a little more developed than usual?

It has been stated that both varieties of the intestinal exantheme which have been just described observed fixed periods in their development, similar to those observed by the eruption of small-pox; so that, knowing the stage of the disease at which death supervened, one might tell, before opening the body, in what stage the exantheme might be found; whether, for instance, it was still intact, or already ulcerated, &c. Our observation has not led us to the same result. We have found the follicles ulcerated in persons who died a few days after the commencement of the disease; and, on the contrary, it has happened us more than once to meet only simple exantheme, without any appearance of ulceration, in persons who had not died till the disease had existed for a very long time.

Neither do we consider it correct to say that the exantheme in patches or in pustules has a necessary tendency to ulceration, and consequently that a person cannot recover till after the patches or papulæ have been changed into ulcerations, and the latter then cicatrised. The eschar, whose fall, it has been said, occasions the ulceration, is but one of the possible, and by no means a necessary, termination of the exantheme; and a person may very well recover from a continued fever after having had only an exanthematous inflammation of the follicles, without eschar, suppuration, or previous ulceration. This has been confirmed by M. Bretonnean.

The state of the mucous membrane between the patches and the papulæ should

also engage our attention. It presents itself under two different aspects; sometimes it is white in every point, and presents no trace of disease whatever; the disease is then confined solely to the follicles; sometimes, on the contrary, this membrane is also diseased in the intervals between the follicles; it is either simply injected in different degrees, or changed in different degrees with respect to its consistence.

Once it was ascertained that no lesion is more frequent in continued fevers than intestinal exantheme or dothinenterite, as it is called by M. Bretonneau: a very important point remained to be established. It then became necessary to determine whether, in the individuals who died during the progress of other diseases than fevers, this exantheme were also found; for, if it so happened that it had been met in every affection as frequently as a hyperemia or a softening of the stomach, it is evident that this exantheme would have lost its value as an anatomical character of what are called essential fevers.

But such is not the case. In vain have we very frequently sought for this exantheme in the intestine of individuals who died of other acute diseases than fevers. We did not meet it; we merely found in different subjects a very unequal development of the follicles, but nothing which resembled the exantheme of fever.

If we examine the intestine in cases of chronic disease, we shall find one, namely, pulmonary phthisis, where the ileum presents a morbid change, which approximates, more than any other, to the exantheme of fevers. This change is also seated in the aggregated follicles, which become very prominent, are of an oval form, and on the surface of the intestine. On making an incision over these follicles, a tuberculous matter is expressed from them which fills the follicles, and to which their tumefaction is principally owing. In this case the chronic progress of the affection is sufficient to occasion a prodigious difference in the symptoms; but still this case proves that the aggregated follicles of Peyer may be affected and changed into exanthematous patches in other diseases as well as in continued fevers.

M. Louis, to whose testimony we frequently appeal, has also sought for the intestinal exantheme in many other acute diseases besides fever, and has never met it, more than ourselves, except in one case of scarlatina, in which he found those of the elliptical patches very red and a little thickened. In this case the existence of scarlatina was not well ascertained, and the person died on the second day of his admission into the hospital, before the particulars of the disease could be well collected. In three other cases of scarlatina, and in two other cases which he does not specify, M. Louis found a very considerable development of Brunner's follicles. We have discovered the development of these separate follicles more frequently than M. Louis in persons who died of other acute diseases besides fever; so that we are inclined to think that their development belongs less exclusively to these affections than that of the aggregated follicles.*

5. Ulcerations.

It is in the part of the small intestine, where the exantheme is developed, that the ulcerations are almost exclusively detected. In many cases it is easy to see that they arise from the destruction either of the elliptical patches or of Brunner's follicles. They are seen to commence on the very surface of these patches, or at the summit of these follicles; and, even in one and the same intestine, one may trace all their progress, even to the complete disappearance of the follicles. There are some subjects in whom we find, in a small portion of the intestine,

* One of the most constant lesions which we met in the epidemic cholera was tumefaction of the intestinal follicles, both the separated and the aggregated. But the patches and papulæ in this case project but slightly above the level of the mucous membrane, and their colour is generally white.

beside each other, first, some patches intact; secondly, isolated follicles, also intact; thirdly, patches and follicles beginning to become ulcerated; fourthly, simple ulcerations. At other times it is only by analogy it can be admitted that these ulcerations succeeded a destruction of the follicles. Nothing proves that there was previous engorgement of these bodies. In this case, however, the ulcerations occupy the same part of the intestine as in the preceding case; they are of the same form, and have the same aspect. They are almost always found like the elliptical patches, towards the part of the intestine opposite to that which gives attachment to the mesentery. Some of them are regularly rounded, others are altogether like Peyer's patches; several of them, when enlarging, frequently unite into a single one, which then occupies a considerable extent. It is not uncommon to see the upper surface of the ileo-cæcal valve changed into one large ulceration; neither is it uncommon to find the mucous membrane of the small intestine completely destroyed to the extent of six or eight inches above the valve. At other times, on the contrary, nothing is found but very small ulcerations, scarcely as large as a five-sous piece, or even much smaller.

The bottom and edges of these ulcerations, and the portions of mucous membrane situate between them, present several aspects, which it is important to distinguish.

Their bottom may be formed either by the sub-mucous cellular tissue, or by the muscular tunic, or merely by the peritoneum. When it is the cellular tissue, sometimes it is thin and pale, and differs in no respect from what it is in its normal state. Sometimes it is very perceptibly thickened, as it were wrinkled, and usually coloured either red, greyish, yellow, or black. To some points of its free surface there are still attached some debris of the mucous membrane, ready to separate like eschars.

When it is the muscular layer that forms the bottom of these ulcerations, it is occasionally found, like the cellular layer, either in its natural state, or changed in its consistence and colour.

When there is nothing at the bottom of these ulcerations but the peritoneal tunic, this membrane may be so fragile that the slightest force is sufficient to tear it; so that, if the individual had lived for some time longer, a cause entirely mechanical — as, for instance, the distension of a part of the intestine by gases — would have been sufficient to produce intestinal perforation.

The edges of the ulcerations are formed by the mucous membrane, which is sometimes red and thickened, and sometimes white and thin.

With respect to the portions of mucous membrane situate between the ulcerations, they are often injected, softened, or exanthematous; but frequently they present no kind of appreciable alteration; they may even be perfectly white.

We have more particularly met these ulcerations with whiteness, and other normal qualities of the tissues, which form their bottom and edges, in cases where, at the time of death, the individuals were bordering on convalesence, or might even be already considered as convalesent. We are inclined to think that the ulcerations found in this state are in progress of cure.

But there are other cases where this cure is still more advanced, and where the particular state in which some points of the intestine are found, can be considered as nothing else than a real process of cicatrisation more or less advanced. Case 27th presented us with an instance of this cicatrisation. It might be so much the more readily admitted in this case, as the individual whose intestine we found in this particular state, which we considered as the sign of a cicatrised ulceration, had died during convalescence from a typhus fever.

The cicatrisation of ulcerations, supervening under the same circumstances, have been also noticed by MM. Bouillaud and Louis. In a patient who died of gangrenous erysipelas of a limb, forty-three days after the invasion of the fever, the symptoms of which were amended at the time of death, M. Louis found near

the cæcum *several ulcerations, the circumference of which was depressed, and whose centre was lined by an extremely thin pellicle, as it were a serous membrane, continuous with the sub-mucous tissue of the circumference.* In another individual, who also died when all the signs of convalescence had made their appearance, the same observer detected one of Peyer's patches, which, in a part of its extent, was smooth, polished, depressed, and divested of mucous membrane. "The latter," says M. Louis, whose own very words we cite, "terminated near the circumference of the patch, and adhered at this point to an extremely thin pellicle, resembling a serous membrane in appearance, which covered the muscular tunic, and was continuous with the sub-mucous tissue."

In the two cases cited by M. Louis a new mucous membrane was not formed; on the contrary, in the cases given by us, there appeared to have been a reproduction of the mucous membrane itself, but a mucous membrane possessing neither villi nor follicles.

In our cases there will be found some instances where, though the individuals died, as the preceding did, during their convalescence, the ulcerations, still very well marked, presented no tendency to cicatrisation. Similar facts have been noticed by M. Louis; they lead us to this conclusion, that the general symptoms which constitute fever are not so connected with the intestinal lesion, that they may disappear, though the latter still exists; but, from these facts, we should not draw the inference that the intestinal lesion did not produce the fever; for the mere transition of this lesion to a less acute state might suffice to explain the cessation of the sympathies, and consequently of the fever. Besides, is not this the case with all the lesions of our different organs? May they not all exist in a completely latent state, either in a continued form, or only at intervals? And observe well, that in all it is not only the general symptoms which may be wanting; there may also be a complete absence of the local symptoms. Recollect those numerous cases of latent pneumonia which we have so frequently met, and which were not announced either by cough, dyspnœa, or the expectoration.

6. Perforations.*

These must be considered as one of the terminations of those different lesions now passed in review. They are the immediate cause of death in a certain number of persons labouring under continued fever. Their most frequent seat is either the exanthematous patches above described, or the ulcerations which have, or have not, succeeded to these patches.

The probability of perforations is not always in a direct ratio of the number, extent, or severity of the ulcerations, or other intestinal lesions. Our tenth case presented us with an instance of intestinal perforation coming on in an individual in whose intestine we only found an ulceration of a very small diameter, with some very small patches around it.

Intestinal perforations come on only at an advanced period of the disease, when the symptoms of what is called adynamic fever are already present. The result is peritonitis, which, in many cases, developes itself by its usual signs, but which, in some cases, however, is not indicated by any pain — a circumstance which is owing, no doubt, to the diminished state of the sensibility. If the abdomen was previously tympanitic, the peritonitis does not cause it to change its form; the small quantity of liquid produced is not then easily detected; in a word, the different local signs of peritonitis may be but very imperfectly marked; and there are cases where the sudden increase of the prostration, and the rapid alteration of the features, have been the only additional symptoms which coincided with the invasion of these attacks of peritonitis produced by perforation.

Speedy death commonly follows peritonitis, which comes on, in the progress

* For a description of these perforations, see our *Pathological Anatomy.*

of fever, in consequence of intestinal perforation. The patients may die from twelve to twenty hours after the appearance of the first signs which excite any suspicion of this affection; however, it may happen that death does not occur till a considerably later period. We have seen a person who had arrived at one of the last stages of adynamic fever, when all at once vomiting came on, and at the same time the abdomen became tense and painful on pressure. We supposed that one of the ulcerations, which probably existed in the intestine, had terminated by perforation. However, on the following day the vomiting and nausea ceased; the abdomen, when pressed, evinced no pain. We thought we were deceived. The patient lived three or four days more without the peritonitis giving any new indication of its existence. The *post-mortem* examination, however, proved that it had occurred, and that it had been occasioned by intestinal perforation.* M. Louis has mentioned a case wherein death did not come on till seven days after the development of the first symptoms of peritonitis. These symptoms, however, had set in in a very severe form. They became somewhat abated towards the fourth day.

Intestinal perforations may also supervene in persons who as yet present only symptoms of a very slight fever, and a disease not as yet marked by any character of severity may thus be suddenly changed into a disease rapidly fatal.

By recapitulating all that has been just said regarding the state of the small intestine in persons who die during the progress of a continued fever, we shall lay down the following propositions:—

1. Among persons who die with one or other of the morbid groups called essential fevers, some present no appreciable lesion in the small intestine.

2. In others, we find in the small intestine lesions similar to those found in most other diseases (injection, softening of the mucous membrane in different stages, etc.).

3. In the greater number, the small intestine presents a peculiar lesion, which, in its acute form, is almost exclusively confined to what are called essential fevers, and which consists in inflammatory tumefaction of the intestinal follicles. From this tumefaction arises an exantheme which occupies the termination of the ileum.

4. This exantheme may terminate in mere resolution or in ulceration.

* The perforations which occur in other diseases besides fever, though ordinarily followed by peritonitis, which proves rapidly fatal, may sometimes occasion only chronic peritonitis. The following case appears very remarkable in this respect: — A young man, labouring under pulmonary phthisis, had, for a considerable time, profuse diarrhœa. The abdomen had been always entirely free from pain. One day he complained of acute pain around the umbilicus, which was increased by pressure. This pain was considered as the result of inflammation in the digestive tube. It remained constant, though not very severe, for eight or ten days. None of the other symptoms were much aggravated. The patient suddenly perceived his abdomen moistened in a great quantity of liquid, and discovered a linear fissure at the umbilicus. In the course of the day an ascaris lumbricoides escaped with a yellow fluid similar to that usually filling the small intestines. Was it not reasonable to suppose that a portion of intestine had been perforated; that, by means of partial adhesions, contracted between it and the abdominal parietes, no effusion could take place into the peritoneum, and that the abdominal parietes were in their turn inflamed and perforated? Was it not, in a word, a præternatural anus which was now established? Still, on the following days, a little fluid continued to escape through the fistula. The abdominal pains were not severe. The patient, having now arrived at the last stage of pulmonary consumption, died twenty-seven days after the appearance of the first pains, and about eighteen days after the formation of the fistula. Traces of a frightful peritonitis were found. The intestines were united into one single mass by black and very thick false membranes. Some greenish fluid was effused between the convolutions of the intestines, and retained there by membranous bands, which formed, as it were, the parietes of a number of partial cells. No adhesion existed at the umbilical region. Two ascarides lumbricoides were found in the peritoneum. Their presence could not suffer us to doubt the existence of a perforation of the intestine; but the adhesions were so numerous and so close, that it was impossible to find it.

5. Observation does not prove that every exantheme which ulcerates commenced by becoming changed into an eschar.

6. Ulcerations, when once formed, do not necessarily prevent recovery, for we have several times ascertained their cicatrisation.

7. The exantheme does not seem to run through as fixed stages, as has been stated, in its development, as in its terminations. When once produced, it does not necessarily terminate either in gangrene or ulceration; and when the latter does take place, it is not always after the same lapse of time.

c.—Large Intestine.

Its lesions are far from being uniform. In a considerable number of our cases we found it perfectly healthy through its entire extent.

Of the different parts of the large intestine the cæcum is that most usually the seat of lesion.

The morbid changes found in the large intestine are:—

1. Simple erythema, which is very rarely general, but is frequently limited to the cæcum.

2. Unusual enlargement of the follicles. The result of this is an exantheme, which, in the cæcum, may present itself under the form of patches similar to those of the small intestine, but which, over the remainder of the large intestine, is never seen except under the appearance of pustules or isolated pimples (*boutons*).

3. Ulcerations. These go on diminishing in frequency from the cæcum towards the rectum. Those observed in the cæcum have the same appearance as those at the termination of the small intestine. In the colon they are generally smaller, and separated by greater intervals. We have met a case in which, of the different parts of the large intestine, the rectum alone contained ulcerations: they were all of the same form and same size; one would have readily taken them for the enlarged orifices of follicles.

Thus the lesions found in the large intestine are of the same nature as those found in the small intestine; as the latter, they may be divided into lesions similar to those met in all diseases indifferently, and into special lesions.

The large intestine may, like the small intestine, but more frequently than it, be found totally exempt from any change.

d.—Substances contained in the digestive tube.

Worms.—These we have met in only a very small number of cases; they were very numerous in one of these cases, and very few in the others. They were ascarides lumbricoides, and tricocephali. The first were lodged in the small intestine, and the second in the cæcum. It seemed to us that in the different cases where we met them, they were merely an accidental complication of the disease. They coincided with most of the symptoms characterizing *mucous fever* in the subject of our fourth case. It may be well to mention here, that in most of those who died of the epidemic mucous fever of Gottingen, Ræderer and Wagler found a great number of worms in the intestines. Why were these animals produced in such quantity in this epidemic? Why in the *post-mortem* examinations in Paris for several years back have so few worms been found?*

Liquid substances. — We have nothing particular to observe with respect to the mucus found in the intestines of persons who die during the course of con-

* In several other epidemics of typhoid fevers, entirely resembling dothinenterite in their symptoms, which have afflicted Europe during the sixteenth, seventeenth, and eighteenth centuries, the very great quantity of worms passed by the patients was noticed as a very prevailing phenomenon of these epidemics.

tinued fever. In its place there is often found a liquid matter, resembling water coloured yellow, which fills a part of the digestive tube. There are some cases in which the intestine contains a great quantity of yellow, greenish, or reddish bile, which tinges its inner surface. We very rarely found this bile in the stomach; and, in general, what we have observed in this respect does not induce us to admit that the accumulation of bile in the digestive passages acts a considerable part in the production of fevers, and consequently should not afford any indication for the treatment. We have not found more bile than usual in the digestive tube of a person who died whilst he as yet presented only the symptoms of a bilious fever (Case 1).

We sometimes find blood exhaled on the surface of the stomach or of the intestines. This blood is sometimes liquid, sometimes coagulated. There are some cases where there is but a small quantity of it deposited in some points of the digestive tube; in other cases this tube is filled with it, and death has then been the result of gastric or intestinal hemorrhage. This hemorrhage is not connected with any particular lesion of the mucous membrane, which, beneath the blood, presents only redness, ecchymoses, different degrees of softening, and which, in the intestine, presents only those same alterations, or else traces either of exanthemes or of ulcerations; we do not find the cause of the hemorrhage in the solution of continuity of any large vessel.

Modified by its tarrying in the stomach, the blood, which is accumulated in it, assumes occasionally such an appearance, that it becomes entirely similar to the black fluid which constitutes the matter of vomiting in the yellow fever. We have cited a case of this kind; M. Bouillaud has detailed another in which there was at the same time a yellow tinge of the skin, and the patient had passed blood both by vomiting and purging. There was found in the stomach a brown liquid resembling a concentrated decoction of coffee. The gastric mucous membrane presented towards the great cul-de-sac patches of a vinous red colour, similar to ecchymoses. In the duodenum there was nothing but bile; but in the remainder of the small intestine some blood was collected, which was coagulated in some points and liquid in others. Several abscesses were found in the liver.

Gas. — The colon is the part of the digestive tube wherein a great quantity of gas is most frequently found in persons who have died of a bad fever. In many individuals the colon is so very much distended with gases, that it is distinctly marked through the abdominal parietes, presses the diaphragm upwards, and conceals in a great measure the remainder of the digestive tube, and the other abdominal viscera. It occupies the epigastrium in particular, where, during life, it might be taken for the stomach.

The cause, under whose influence this great disengagement of gas takes place in the colon, is still unknown. We cannot attribute it to inflammation, nor ulceration of the colon, for this meteorism exists as often in cases where, after death, the colon is found free from all appreciable lesion, as in those where it is found diseased. Besides, as has been remarked by M. Louis, the small intestine is much more frequently inflamed or ulcerated than the colon, and yet there is not produced in the ileum the same quantity of gas as in the large intestine. All we can say is, that this great disengagement of gas belongs almost exclusively to the class of diseases now under consideration.

d.—Relation which the Gastro-intestinal Lesions bear to the Symptoms.

After having passed in review the different morbid changes found in the digestive tube of persons who have died during the progress of continued fever, we must now inquire what relation may be established: 1st, between the period at which these changes come on, and the different phases of the diseases; 2dly, between the intensity of these same changes, and the severity of the symptoms.

The solution of these two questions once given, we shall be better able to appreciate the influence exercised by the gastro-intestinal affection on the production of the symptoms.

The second case afforded us an instance of an individual who died in only six days after the invasion of the disease. In this case the alteration of the follicles was very well marked. It was equally so in another (Case 1), who died on the ninth day. M. Trousseau mentions a *post-mortem* examination by Bretonneau, on the fifth day of the fever. In this case, as in the two preceding, the follicles were found diseased.

The glands of Peyer were very much tumefied, and they formed patches which were raised above the mucous membrane. MM. Petit and Serres have mentioned the case of a man who died of pneumonia a very few days after the signs of the disease, which they called entero-mesenteric fever, began to manifest themselves (from the fourth to the sixth day); the patches of the ileum were very numerous. They were also met by M. Louis on the eighth day of the disease.

Thus when the continued fever is connected with the intestinal exantheme, the latter commences from the very first appearance of the disease. It also accompanies it in its entire course, and it is found in fevers which have lasted only a very few days, as well as in fevers which have not been followed by death till after forty or fifty days' duration of the affection. This second statement is sufficiently demonstrated by our particular cases, as also by those of MM. Petit and Serres, Bretonneau, and Louis.

When the group of symptoms which constituted the fever has disappeared, and when at a period more or less remote from the commencement of convalescence some other affection carries off the patient, traces of cure of the exantheme are found in the intestines; these traces are either depressed patches, or cicatrised ulcerations. Sometimes even the dothinenterite still exists, though the fever may have decreased for some days back; we then find either patches whose resolution is scarcely commencing, or ulcerations not yet cicatrised. Thus, when a lung has been attacked with inflammation, it often happens that it still remains hepatised after the characteristic symptoms of the disease have disappeared.

Thus inflammation of the follicles arises with the fever, or at least a little time after it, and it continues as long as the fever itself continues. To be sure, the intensity of the lesions which characterize follicular enteritis is not always proportioned to the severity of the symptoms observed during life. But is not this the case with most diseases where, in different subjects, symptoms varying both in their nature and severity appear in consequence of one and the same lesion?

Follicular enteritis then appears to us to be the commencement of a very great number of what are called essential fevers, and particularly of that which MM. Chomel and Louis have designated *typhoid fever*.

This latter fever itself may, however, present itself in cases where the intestinal follicles are not diseased, and, in a word, there is scarcely any disease, having its primary seat either in the solids or in the blood, in consequence of which we may not see *typhoid fever* sometimes developed, and much more frequently *simple typhoid phenomena*, or under other forms the different symptoms to which Pinel gave the name of *ataxic* and *adynamic*. Our particular cases present numerous instances of this; and the reflections accompanying them sufficiently develop this point of doctrine.

SECTION I.

FUNCTIONAL LESIONS OF THE DIGESTIVE APPARATUS, OBSERVED DURING LIFE.

This apparatus presents, during the progress of fever, disturbances of func-

tions which tend to show, at least as much as the lesions detected there after death, the important part it performs in the production of these diseases.

Let us examine those functional disturbances, referring them to the different parts of the canal, where we may presume that each of them has its seat.

In almost all the cases of slight or severe fevers reported in this work, we found the mucous membrane of the mouth, excepting that of the tongue, of which we shall speak presently, changed both with respect to the quantity of blood which should circulate through it, as also with respect to the secretion which in the natural state should take place on its surface.

The mucous membrane of the mouth, in these diseases, is usually of a deeper red than in other affections where the febrile disturbance is still as great; as, for instance, in acute pneumonia or acute articular rheumatism. At the same time its secretion is either suppressed, or increased in quantity, or changed in character. In the first case, this membrane presents unusual dryness; in the second case, the mouth is filled with a viscid, gluey mucus; in the third case, instead of mucus, there is sometimes observed on the surface of the lips, gums, and cheeks, a creamy or cheesy substance which covers these parts, either under the form of isolated points, or in the form of patches of greater or smaller size. At other times the mucous membrane exhales a certain quantity of blood, which coagulates on its surface, and produces yellow or black crusts more or less thick.

What do these different modifications of the buccal secretion indicate? And first, are they connected with certain determinate and always identical states of the sub-diaphragmatic portion of the digestive canal? By no means. All these varieties of the buccal secretion are found without there being any difference in the morbid changes of the stomach or intestines. Still more; there is not one of these varieties connected with certain degrees of intensity of the gastro-intestinal lesion. The latter may be very slight, or very severe, with all the possible shades of secretion of the mucous membrane of the mouth. These shades depend, then, on the gastro-intestinal affection with which they coincide, and which is, as some will have it, their occasional cause, but on peculiar dispositions of the individuals, dispositions which are always connected with the states in which their innervation and hematosis may be placed, whether temporarily or permanently.

Thus, then, the modifications which the mucous membrane of the mouth presents in persons labouring under continued fever, do not indicate the nature or severity of the lesion of the digestive passages; they are but the expression of a general state by which the prognosis of the disease and its treatment should be regulated.

Of all diseases, fevers are certainly those where the tongue presents the most varied as well as the most important modifications. These modifications are so generally known, and we have dwelt so much on them in our particular cases, that we shall not now lose much time in describing them. We shall now speak of them principally in order to convert them into signs.

Is the state of the tongue, in fevers, a faithful index of the state of the stomach? From the facts contained in our particular cases, we feel warranted in deducing the following conclusions:

1. No constant relation can be established between the state of the tongue and that of the stomach.

2. Each of the modifications which the tongue may present, in its colour and in its coatings, does not correspond with any specific modification of the stomach.

3. The stomach may present after death a similar state, however dissimilar may have been the state of the tongue during life.

4. A morbid state of the stomach may coincide with a natural state of the

tongue, and a morbid state of the tongue may coincide with a natural state of the stomach.

5. The dryness and black colour of the tongue does not indicate a more severe affection of the stomach than is indicated by any other modification of the tongue.

These results have been still further confirmed by the observations of M. Louis. We may also remark with this physician, that in a great number of other cases besides continued fevers, where the tongue scarcely deviates from its natural state, the stomach is not found in a state different from that in which it is found where the tongue is red, dry, covered with black crusts, &c.

Can we establish a closer connexion between the state of the tongue and the state of the small intestine ?

With the exception of some individuals whose tongue continued natural, we found it changed in all those whose small intestine was exanthematous. But whether the patches were still intact, or already in a state of ulceration, there was no state of the tongue which corresponded exactly with either of these stages of the exantheme. And further, the varieties in the extent of this exantheme were not indicated by different states of the tongue ; neither could it serve to show whether, between the patches or between the ulcerations, the mucous membrane was healthy or diseased. Thus, of two individuals who were both found to have dothinenterite similar in every respect, the one had his tongue covered with a yellowish coat, whilst the tongue of the other was dark-coloured.

Among the individuals who, after having had all the symptoms of severe fever, yet presented no trace of exantheme, but simple erytheme of the intestinal mucous membrane, some retained a natural state of the tongue, whilst others had it dry and black ; and yet these different states of the tongue existed with one and the same state of the small intestine.

Again, in those in whom the symptoms of bad fever could not be accounted for by any lesion of the digestive passages, we found the tongue dry and black, with all the small intestine perfectly healthy.

There is not, therefore, any more necessary connexion between the state of the small intestine and of the tongue, than between that of the tongue and the stomach.

With respect to the large intestine, we have often found it perfectly healthy with all possible states of the tongue.

It seems to us, therefore, sufficiently demonstrated, that of the numerous modifications which the tongue may undergo, there is not one which should be considered as the necessary product of a morbid state of the stomach or intestines. The tongue may remain healthy, the digestive tube being diseased ; it may present a diseased appearance, though the digestive tube may have continued healthy ; but there is very often a coincidence between the affection of the tongue and of the sub-diaphragmatic portion of the digestive passages, which may be accounted for by the similarity of the organization and functions of these different parts. The same cause, which, from the commencement of a continued fever, or in its progress, renders the gastro-intestinal mucous membrane diseased, also attacks the mucous membrane of the tongue and mouth, as it almost always attacks the mucous membrane of the air passages at the same time ; but it may happen, as is proved by observation, that this cause produces the disease in only one of these parts, leaving the others intact. Only taking into account how very rarely these affections exist separately, and considering their frequent coincidence, we must admit, that every time there is any modification in the state of the tongue, there are strong grounds for thinking that there must be at the same time disease of the gastro-intestinal mucous membrane ; it is from the

other symptoms we are to learn whether this coincidence, which is only possible, but not necessary, does really occur in such or such a particular case.

With respect to the varieties of changes which the tongue undergoes, with what are we to connect them? We now know it is not with different morbid states of the gastro-intestinal mucous membrane, such at least as those presented to us in *post-mortem* examinations. Here all our theories have proved insufficient to explain these every-day facts. But observation has taught us, that among these numerous modifications of the tongue, there are several which, connected or not with an affection of the stomach or of the intestines, indicate certain specific states of the system which can only be combated with advantage by opposing to them a treatment as specific as themselves.* Thus, a red tongue, whether this redness appears in separate and isolated points, or on the edges, at its apex, or at its centre, uniformly contraindicates the employment of any other means than that of antiphlogistics; and a broad tongue, covered with a white or yellowish coat, and without any trace of redness, whether pointed, or of any other kind, often contraindicates bloodletting: it may indicate, on the contrary, the employment of emetics or purgatives; and that, not because there is then in the stomach matters to be evacuated, but because experience has shown us that, after the changes produced in the system by strong emetics or purgatives, there is the greatest possible chance for our seeing that peculiar morbid state to disappear, which had been indicated by the appearance of the tongue; but it should be well observed, that in the same manner as redness of the tongue is not necessarily connected with gastric irritation, so whiteness of the tongue does not always exclude the existence of this irritation: it is for the other symptoms to disclose this; we may then estimate their importance, and calculate how far the existence of this irritation may modify the treatment. Whilst we no longer consider dryness and blackness of the tongue as necessarily connected with gastro-intestinal inflammation, we shall find in this appearance of the tongue the index of a third state of the system, in which, whether there may be or may not be gastro-enterite, debilitating means of every kind become injurious; by which we do not mean to say that we must necessarily have recourse to a stimulant plan of treatment; to refrain from bleeding does not imply that we are to give quinquina. To leave to nature, by an expectant mode of treatment, sufficient strength, so that she may be able to proceed to a resolution of the disease, is not the same thing as occasioning by medicine a reaction entirely artificial, which may be occasionally useful, but is also frequently unattended with benefit, or proves even injurious.

Dryness and blackness of the tongue do not ordinarily happen till rather an advanced stage of the disease. This state of the tongue may be preceded by a red and polished appearance; oftentimes the tongue then seems to be glued to the finger which touches it. The epithelium becomes still drier; it then becomes chopped; blood escapes from these chops; it accumulates on the surface of the tongue, where it forms brown or black crusts.

At other times, a viscid mucus of a dirty grey colour causes the tongue to adhere to the velum palati and to the teeth. This mucus is imperceptibly changed into a blackish coat.

In other persons, the white yellow coat which covered the tongue is observed gradually to become brown.

In other cases, this coat which is at first very thick, diminishes; it disappears from the centre of the tongue, which at this point becomes dry, and presents a red tint, which passes imperceptibly to brown and black.

* We should never forget that, at the moment a disease attacks a patient, a certain modification occurs in the organization, the nature of which depends on the different physiological states in which the disease finds the subject, the result of which may be a difference in the nature of this disease itself, the appreciable lesions of the organs remaining the same.

Beneath the black crusts, or between them, the tongue is sometimes remarkably pale.

At the same time that it is dry it may be very pale, or of a clear yellow tint, which somewhat resembles the colour of burnt cream.

Though, as we have just now remarked, the dry and fuliginous state of the tongue does not in general present itself till after the disease has existed for some time, there are some cases where this state of the tongue shows itself from the very first days, or even from the very first moment. Sometimes the premature appearance of this state coincides with other bad symptoms, which may continue or disappear before it. Sometimes no other alarming phenomenon is observed than the dryness and brown colour of the tongue. There are some persons who are very particularly disposed in this respect; they cannot have even a slight attack of illness, without their tongue becoming instantly dry and brown.* In some, this state of the tongue continues during the entire course of the disease; in other persons it only marks its commencement. We have mentioned some cases of this kind. Thus the prognostics drawn from the tongue have their exceptions as well as others.

Let us now follow up the examination of the other functional disturbances of the digestive tube.

The loss of appetite has constituted, in several patients, the precursor of the affection. A certain time before taking to their bed — sometimes for some days only, sometimes for a month or six weeks — they no longer felt the sensation of hunger as usual, and this sensation by little and little became altogether lost. This was occasionally the only derangement which they suffered in their health; but most frequently to the diminution of appetite there was added general illness, a distressing headach, pains in the kidneys and in the limbs.

In several other patients, the appetite remained intact up to the day when they were suddenly siezed with fever, and took to their bed. In some even it was almost immediately after a meal which they had eaten with as much appetite as usual that the fever manifested itself.

Anorexia then is a frequent, but not uniform, precursor of continued fever.

During the entire course of the disease, no appetite whatever was felt; some patients asked for food, conceiving the debility which they experienced to be hunger.

At a subsequent period, when every thing indicates the commencement of convalescence, there are some patients in whom the appetite is suddenly re-established, and a considerable number of persons may pass at once from a strict to a very substantial diet: we do not think that such would have been the case, if there were in such persons any serious lesion of the gastric mucous membrane. Others, though feeling considerable appetite, cannot satisfy it without risk; when a small portion of food is given to them, the pulse becomes accelerated, the skin hot, or diarrhœa returns. And yet there is no bad taste in the mouth, the tongue is natural, there is no thirst, and the epigastrium is free from pain. We are inclined to think, that in such a case it is not the stomach which suffers from the food, but the intestines, whose mucous membrane, as yet scarcely healed, is irritated by the contact of any foreign substance. For want of paying sufficient attention in such cases to the effects of taking food, persons have been attacked with diarrhœa which nothing could check, and which carried them to the grave, either in an acute form, or after having made them pass slowly through all the stages of marasmus.

With such convalescents it is important, therefore, for some time to restrict their diet to food, the materials of which, being almost entirely absorbed in the

* We have remarked that the tongue became dry and brown in old persons more readily than at the other periods of life.

stomach itself, or in the upper part of the small intestine, afford the least possible residue. In such cases, we have seen milk replaced with great benefit by beef soup suitably prepared.

In other convalescents, all their functions are restored to the normal state ; the diarrhœa has disappeared for a considerable time, and yet the mouth continues foul and clammy, the tongue is loaded, and the appetite is not restored. Under such circumstances, a continuation of strict regimen is all that is to be prescribed. But it must be recollected that there are individuals of such a constitution that they are not able to support abstinence from all food for a long time ; such treatment in them gives rise to various nervous symptoms, an alarming acceleration of the circulation, then secondary hyperemias, the real cause of which is often overlooked. In such cases we should carefully examine the state of the primæ viæ, and if there appears no contraindication, we should give some bitters. There is not a doubt but the adoption of this treatment has often produced a most favourable change in the state of the stomach, so that the result of it was the return of appetite ; and, at the same time, all the symptoms disappeared which had been produced and kept up by the continued strict regimen. Are these cases where advantage might be derived from the use of emeto-cathartics, which ancient humourists thought themselves in a manner bound to employ during convalescence in almost every acute disease? Was it mere theory which suggested this practice to them ? Was it the observation of some cases, wherein, when judiciously applied, it had succeeded ? With respect to this matter, it should be recollected, that the subjects of several of our cases were persons having no longer any fever, and presenting no other ailments except want of appetite, and some other symptoms referrible to gastric disturbance, when these symptoms began to disappear immediately after they had taken an emetic. Satisfied as we are that a question of therapeutics especially cannot be solved except by a much greater number of facts than those we have given on this particular point, we shall merely state what we have observed, and, without wishing to draw from it any definite consequence, we still think such facts merit attention.

The sensation of thirst has been very variable in our patients. With the same group of symptoms, some experienced intense thirst, whilst others felt no desire for drink. One of those in whom the thirst was extreme, had his stomach perfectly healthy. Thirst, therefore, is not always the sign of gastric irritation : it may also be attributed either to a derangement of all the functions of nutrition, or to a sudden and great loss of the serum of the blood, or to mere disturbance of the nervous system.

A small number of patients experienced nausea, and a still smaller number had vomiting. We have more than once seen this symptom make its appearance only at the commencement of the disease, and then cease. The matters vomited consisted either of the drinks taken into the stomach, or of a small quantity of clear, transparent mucus, or of yellow or greenish bile, or of blood. This last species was the most uncommon ; the blood vomited was black, like a solution of chocolate or coffee-grounds.

No connexion could be established between the existence of nausea or vomiting and any determinate state of the stomach appreciable on the dead body. On the one hand, we have not observed these two phenomena in several persons whose stomach was found intensely red and very seriously altered ; on the other hand, they have been observed in persons whose stomach, when examined after death, was found in an almost healthy state. This important fact has been also confirmed by M. Louis. Out of twenty persons labouring under the affection which he has called typhoid fever, and who had had either nausea or vomiting, only eleven presented a more or less serious alteration of the gastric mucous membrane.

Thus the existence of nausea or vomiting in continued fevers does not prove that there is, in the individuals so affected, a greater irritation of the stomach than in those in whom they are absent. We cannot even infer from them the simple fact of the existence of this irritation.

What, then, is indicated by these phenomena with respect to the nature of the disease? and what with respect to treatment?

What appears to us clearly demonstrated is this, that when an individual labouring under continued fever happens to be seized with vomiting, without the tongue becoming red, without having thirst, or feeling any pain in the epigastrium, there is reason for thinking that it is not an increase of gastric irritation which has produced this vomiting. Neither do we think that it should be admitted without further proof that this nausea and vomiting, which depend not on gastric irritation, are to be attributed to the presence of bile, or mucus in the stomach, or to what Stoll called *gastric saburræ*. For, in such cases, pathological anatomy has no more proved the existence of such saburræ, than it has proved the stomach to be invariably red or softened. It is easier, then, to point out the circumstances to which this nausea or vomiting cannot be referred, than to mark the organic conditions which give rise to them. Do these phenomena depend on a disturbance of the innervation? We would be disposed to think so in a certain number of cases. May they also depend on a necessity felt by the system to modify, by the act of vomiting, either the secretion of the mucous follicles, or that of the liver, in order that the blood may then free itself from the principles which change its composition, either by their quantity or their qualities? This hypothesis might be supported by some facts. We might appeal, in its defence, to those well authenticated cases, in which persons presenting yellowness of the skin, foul tongue, constant nausea, or vomiting, and, at the same time, either having or not having fever, have been promptly freed from these symptoms after taking tartar emetic. Some of the cases detailed by us attest the truth of this remark.

To the facts of this kind already cited we shall add the following:

During the wet summer of 1829 several patients were seen by us to present the following state: —

After having experienced, for some days, general illness, headach, progressive diminution of appetite, those persons lost their strength; their countenance assumed a yellowish tint, in which the conjunctiva also participated; a thick coat of a yellow, green, or white colour, covered the tongue, which was broad, and not red in any one point of its surface; at first there was a bad taste in the mouth, then came on an inclination to vomit, and ultimately vomiting of mucous or bilious matter; several could not take the smallest quantity of ptisan into the stomach without instantly rejecting it; an annoying sensation of weight was experienced in the epigastrium; the abdomen, in every other part, was free from pain, and soft, sometimes, however, slightly distended; stools were ordinarily obtained only by lavement. There was at the same time febrile disturbance, which, in the course of the day, was not considerable, but which, every night, was characterised by an exacerbation not preceded by any shivering, but which ended every morning in a profuse sweat. Some of these patients were subjected to an expectant treatment, and they recovered very slowly; others were bled without any relief. In one patient the first febrile exacerbation which took place came on in the evening of the day on which leeches had been applied to the epigastrium. In no instance was the violence of the fever diminished after bleeding. In several, again, the tartar emetic was tried, and we were singularly struck with the prompt change for the better which immediately followed the use of this medicine, with some exceptions, which we shall notice presently. Once they took the tartar emetic, and had vomited copiously, the nausea and vomiting no longer returned, the febrile disturbance disappeared, and a rapid cure took place. In three patients, however,

this did not occur; in one of them the employment of the tartar emetic was not followed by any change, good or bad; in the other two the nausea and spontaneous vomiting also ceased, but the tongue became red and dry, the abdomen was slightly tympanitic, the yellow tint of the face, far from diminishing, increased, and a certain air of stupor was diffused over the countenance. In these two cases leeches were applied to the epigastrium, and the patients appeared to derive benefit from them. It is probable that, in the three patients now mentioned, and particularly in the two latter, there existed a morbid state different from that which existed in the others, to whom the emetic had been given with indisputable advantage. Perhaps these are those cases so often met in the practice of medicine in which lesions of a different kind are still indicated by identical symptoms; but probably, also, it was a peculiar disposition in the individuals, which, in their case, rendered the employment of the tartar emetic useless or injurious. Be this as it may, by whatever conjecture we shall endeavour to explain the matter, we are warranted in inferring, from the preceding facts, that the same treatment does not always succeed, though employed in cases of diseases which bear the closest possible resemblance with respect to their symptoms. But this is certainly no reason for renouncing medical treatment, from which a skilful and experienced hand may often derive such great advantage. In that case we should renounce therapeutics altogether; we should no longer employ quinine in intermittent fevers, nor opium to assuage pain.

On applying all that has been just said to the subject now before us, we shall establish as corollaries from the preceding facts, that, when nausea and vomiting exist with the other symptoms which have been just noticed, we may cause them to disappear, and at the same time improve the entire system, by giving a vomit; and then the well-known adage, *vomitus vomitu curatur* — which, as a general principle, is false — is true in a certain number of cases, and rests on the observation of undeniable facts.

Unfortunately, and this must be admitted, there will still remain a certain vagueness in the practical determination of the cases in which it is proper to give the emetic, so long as, not knowing the morbid modification which is removed by the emetic, we shall have no other guide for its employment than the examination of the symptoms. For these symptoms may, to be sure, in their infinite shades, point out the change in the indications to be fulfilled; they may also appear similar to us, their organic cause, however, being different. Here are no doubt great and serious difficulties; but the first condition for making any advance is, thoroughly to know them; and we think we have rendered some service, by pointing out these difficulties such as observation presented them to us. We may be tasked, to be sure, with hesitation and uncertainty of doctrine, but for this reproach we shall not care much, as we think it not right to be more positive in a book than at the bed-side of the patient; and we sincerely pity the blindness and prejudices of those who, in practice, consider as solved the questions we have just started, whether they think that we may always determine with certainty the cases wherein it is useful to oppose tartar emetic to gastric symptoms, or whether they have taken it as proved that these symptoms, uniformly aggravated by emetics, should be combated in all cases by bloodletting. For our part, all we can positively say is, that neither are in the right.

It should be remarked, that nausea and vomiting are much more frequent at the commencement of the disease, and when it is still mild. These phenomena become more and more infrequent; they even disappear, if they had existed, according as the fever becomes worse, particularly according as the adynamic symptoms come on. They appear to us to be so infrequent in this latter stage of the disease, that if they do occur then, there is reason to apprehend that they are the symptoms of peritonitis occasioned probably by an intestinal perforation.

The person, whose knowledge of continued fevers should be confined to the morbid changes so frequently found in certain parts of the digestive tube in these diseases, would no doubt be inclined to think that such serious lesions of the intestinal mucous membrane must be indicated by acute pains, and that these pains should constitute one of the most ordinary symptoms of most continued fevers. Yet, if he were to go through the cases contained in this work, in order to seek for this symptom, he would, on the contrary, see that the abdominal pain is completely wanting in a great number of cases; that, at other times, it is only transitory, and in a manner fugitive, and that it is even a little acute only in some cases, which are so rare that they may be considered as real exceptions.

Pain, when it does exist, may have its seat, first, over the entire abdomen, where it is, as it were, diffused; secondly, in some isolated points, and especially in the epigastrium, towards the ileo-cæcal region, around the umbilicus, in the course of the colon. It is in these different points that we must seek for it, first asking the patient whether he feels pain in any of these points; then trying to cause it by different degrees of pressure.

Some patients complain of suffering over the entire abdomen. Over the entire extent of this cavity they experience a dull sensibility, which is changed into pain by pressure. This general sensibility may be occasioned by irritation of the primæ viæ; but why does this irritation produce it in one case, and not do so in twenty others? Does the peritoneum then participate slightly in the lesion of the mucous membrane? Is it a sign that the intestinal villosities are more especially affected? To these questions no satisfactory answers can be yet given.

There is another case in which the pain, also extending over the entire abdomen, is no longer seated in the viscera of this cavity, but in the skin of the abdominal parietes, or in the subjacent muscles. This pain is much more acute than the preceding; very slight pressure on the skin is all that is necessary to produce it; and then it very often happens that pain is produced, no matter what point of the cutaneous surface may be pressed. This pain should be referred to a mere exaltation of the general sensibility; it ordinarily coincides with other nervous phenomena.

In some cases, on touching or pressing the abdominal parietes, we ascertained the existence of a pain, which was also very extended, but which still recognised another cause different from the preceding. It seemed owing to an effusion of blood which we discovered on opening the body in the muscular fasciculi of the abdominal parietes, and particularly in the recti muscles. In such cases the pain is occasionally very acute; the slightest pressure renders it very intense, and it might incline one to believe in the existence of a peritonitis.

The epigastric pain is far from being constant, and our observations on this subject are fully in accordance with those of M. Louis, who has found this pain absent in nearly one half of the persons whose bodies he has opened. This pain has been but seldom observed in the cases of dothinenterite, published by M. Trousseau, as also by M. Gendrin. There is scarcely any mention of it in the work of MM. Petit and Serres. M. Bouillaud seems to have observed it most frequently.

When this pain exists, sometimes pressure alone occasions it; sometimes it is spontaneous. Patients complain of a constriction, a weight, or else a more or less intense heat in the epigastrium. The use of drinks rarely increases it; it may occupy the entire epigastrium, or be limited to one point of this region; and, in this latter case, it is principally on the level of the ensiform cartilage, in the point of the stomach corresponding to the cardia, that it is felt. In very few patients we have seen the pain exist more particularly towards the great

cul-de-sac; in that point, however, where, after death, the mucous membrane was most frequently found changed. Some patients refer the painful sensation they feel to a point higher up than the epigastrium; for instance, to the lower part of the sternum, to the extent of three or four fingers' breadth above the ensiform cartilage; others complain of something like a bar extended transversely from one of the hypochondria to the other, passing over the epigastrium.

In all these varieties the epigastric pain is generally obtuse; sometimes, however, it acquires such intensity, as to become a predominant symptom, and to call for special treatment.

Whatever be its severity, the epigastric pain varies with respect to its duration and the time of its appearance. It may commence with the disease, and continue during its entire course. After having existed from the commencement, it may promptly cease, whether the other symptoms are diminished or not. It may also appear at a period of the disease more or less remote from its commencement. We have seen some persons in whom, three or four weeks after the invasion of the disease, there had existed an epigastric pain, without any other appreciable derangement of health.

The epigastric pain generally indicates a state of irritation of the stomach, but it is not connected with any special lesion of this organ. It may present all the possible varieties of hyperemia, softening, and ulceration, without having ever been the seat of the least pain. On the other hand, the stomach has been found healthy in persons whose epigastrium had been the seat of pain. M. Louis mentions five persons whose stomach presented nothing remarkable, and who had had pains in the epigastrium. But he does not tell us whether these pains still existed at the time of death. The result of the observations of this author — a result which also corresponds with our own — is, that when the pain in the epigastrium co-exists with the vomiting of bile, there is every reason for thinking that these two symptoms combined are the result of a real inflammatory state of the stomach.

We should not forget that, in a very considerable number of persons attacked with continued fever, there is such a distension of the colon, that when the epigastrium is pressed, the pressure is on the colon and not on the stomach. Neither should we forget that, in many persons in very excellent health, pressure not at all violent, made on the epigastrium, occasions a painful sensation.

We have above pointed out the points of the abdomen, besides the epigastrium, which become more particularly painful. At these different points the pain may be spontaneous, or may be produced only by pressure. Oftentimes also it is not felt except when the patient has occasion to go to stool; it is then simple colic. But this latter symptom does not even necessarily accompany the purging which comes on at different stages of fever. There are some patients who have very copious and almost continual stools, without any painful sensation. There are others who feel nothing but a little heat towards the fundament.

In these cases, however, where the abdomen, when pressed in every point, is not found to be painful, the mucous membrane is most usually seriously altered. Confirming, by our researches, the splendid observations of M. Broussais with respect to the indolent character of several intestinal inflammations, we stated in the first edition of this work, that a person would be liable constantly to overlook the most severe cases of enteritis, if he would not admit its existence except when pain was present. Since the publication of our researches on this subject, numerous works, published by men of the most different schools, have demonstrated that the intestines may be very seriously affected without any pain being felt. We have also seen this pain absent: 1st, in cases of simple erythema of the mucous membrane; 2d, in those cases where numerous exanthematous patches covered the inner surface of the small intestine; 3d, in other cases where, instead of patches, there was observed in the small or large intestine only,

a greater or less number of isolated papulæ (*boutons*); 4th, in cases also where ulcerations had formed either in the ileum, or on either surface of the ileo-cæcal valve, or in the cæcum, colon, or even in the rectum. We have met subjects in whom the ulcerations had nothing but the peritoneal coat for their bottom, and yet these persons had never felt any pain; and observe, that we here speak only of cases where the patients still enjoyed the free exercise of their intellect at the time we wished to ascertain the existence of pain in the several points of the abdomen.

There are cases where, after all the symptoms have disappeared, there still remains a diarrhœa which interferes with convalescence, and which it is important to combat. But what means should be employed, and should the choice of these means be regulated by the presence or absence of abdominal pain? We do not think so. We have very frequently met with these indolent diarrhœas, the cause of which anatomy proved to reside in intestinal ulcerations.

One of the most constant phenomena of continued fevers is the change observed in the alvine evacuations, which sometimes become more scanty, and sometimes more copious than ordinary.

Constipation, which is more unfrequent than diarrhœa, sometimes continues during the entire course of the disease, whether it terminates favourably or fatally. Thus, the person who forms the subject of the first case, and who did not die till the thirty-first day, had never any purging; no ulcerations were found in the intestines, but merely a tumefied state of the follicles of the small intestines, with redness of the cæcum. In other cases, the constipation exists only at the commencement of the disease; it is then succeeded by a diarrhœa, more or less profuse.

The diarrhœa may commence at different periods of the disease. With respect to the time of its appearance, the following cases should be distinguished: —

First Case. Appearance of diarrhœa, for a longer or shorter time, before all the other symptoms. Thus, several of our patients stated to us, that for several days, or even several weeks, before they were confined to bed, they had been seized with a purging, which in some was continual, and in others appeared only at intervals. According as this purging was prolonged, they felt their appetite diminish, and their strength sink; at last they were attacked with fever, and then they entered the hospital.

Second Case. Simultaneous invasions of the diarrhœa, and of the other symptoms. This was the case with a certain number of our patients, who had not perceived the least alteration in their health; when on a sudden, after causes more or less appreciable, they were attacked at the same time with purging and fever. This purging was frequently very severe from its commencement. In some it did not commence till after a violent shivering.

Third Case. Appearance of diarrhœa several days after the invasion of the fever. It then very rarely succeeds to natural stools, more frequently to a more or less obstinate constipation; it sometimes comes on without any known cause, and sometimes follows the employment of something stimulating. We have more than once seen it come on, so as never again to be checked, after the patients had taken calomel, which had been given to overcome their constipation. In some it set in gradually, and at first its existence was scarcely perceived; at first, there were in the twenty-four hours only one or two stools of bad consistence. In others, it was very severe from the commencement. Patients who had been for several days without going to stool, have had suddenly, in the course of a few hours, a very great number of alvine evacuations. The sudden setting in of so severe a diarrhœa generally coincides with an aggravation of the other symptoms. It is frequently at this time that we see the form of what is called inflammatory, or bilious fever, pass rapidly to the adynamic or ataxic form. One

of the most remarkable cases of this kind which we have had an opportunity of seeing is the following: —

A young man, just after being appointed an officer of health, was preparing to leave Paris, when he was seized with violent headach and fever. For ten days he presented the symptoms of inflammatory fever: the headach was very severe, and the bowels were constipated. He was repeatedly bled, but this did not diminish either the headach or the other symptoms: there was as yet nothing in his case decidedly alarming; the intellect had remained perfectly clear, when a few hours after the application of leeches to the anus, the constipation, which had continued till that time, was suddenly succeeded by very profuse diarrhœa. From this moment, sudden prostration set in, rapid sinking of the features, repeated epistaxis, dry and fuliginous state of the tongue, tympanitic state of the abdomen, extreme frequency of the pulse, subsultus tendinum, delirium, and death in less than fifty hours after the appearance of the diarrhœa.

Fourth Case. Appearance or continuance of the diarrhœa during convalescence. It is not a common circumstance for diarrhœa to occur for the first time when convalescence is established; but it is more common to see it continue, and even become more profuse, at the very period of convalescence. The diarrhœa is then often very inconsiderable, and does not attract attention; still the patient's strength does not return, or it again diminishes after having appeared to be re-established; the skin continues dry; after some time the pulse becomes a little frequent; a slight febrile disturbance appears, either constant, or only at intervals; the patient remains pale, as it were anemic, and it is quite evident that he is every day sinking. Yet the local symptoms, which can account for such a state, are often scarcely marked; the patients ask for food; their appetite and digestion appear good; the abdomen is soft, free from pain in every part, and there are at most but two or three stools in the twenty-four hours; sometimes even this number of stools occurs only every three or four days, and every twenty-four hours there is but one liquid stool. Notwithstanding this apparently mild nature of the local symptoms, the marasmus proceeds, and, after a longer or shorter time, the patients die. When their bodies are opened, there are found in the intestine, in the place of the aggregated follicles, ulcerations more or less extensive both in breadth and depth.

This is what takes place in certain cases; in others the local symptoms are more marked; the appetite is nearly gone; or else, if the patients still have a desire for food, it is badly digested, or it goes to increase the purging. The abdomen is a little sensible on pressure; the patients feel it painful even without pressure; the stools are more profuse than in the preceding case; they are more watery, and are sometimes tinged with blood. On opening the bodies of such patients no other lesion is found but that observed in the patients mentioned in the preceding paragraph; and here again is a case where, in consequence of certain dispositions of the system which escape us, identical lesions give rise to different symptoms. But a circumstance, which we shall not neglect to notice, is, that in these two cases, where the local symptoms referrible to the intestinal lesion are so little alike, the treatment should continue the same. In neither of these two cases have we seen tonic or astringent substances succeed. The identity of the lesions in these two cases sufficiently accounts for the identity of therapeutic results, which, by the mere consideration of the symptoms, we never could comprehend.

It has been said that diarrhœa indicated irritation of the large intestine; it has been given as the sign of colitis; and it has been affirmed that, as long as irritation was confined to the small intestine, constipation existed. Our observations by no means accord with these ideas. We have found, in several instances, the large intestine perfectly healthy through its entire extent, though,

during life, and up to the moment of death, profuse diarrhœa had existed. It appeared to us sufficient to produce purging that the termination of the small intestine should be altered in any manner whatever. Here, again, the researches of M. Louis are confirmatory of ours.

Can the nature of the stools afford any information with respect to the nature or severity of the alteration which the intestine has undergone? We do not think it. Whether there be simple erythema of the mucous membrane, tumefaction of the follicles, or ulceration, we see the stools sometimes serous, and resembling water, tinged yellow or green; sometimes appearing to consist of nearly pure bile; sometimes mucus; at other times resembling pease-soup of a blackish brown colour, or of a grey ashy colour; at other times mixed with blood. There are cases where the latter fluid itself forms the entire matter of the stools; the quantity of blood voided by the anus is then sometimes very considerable; in some patients there is observed only one evacuation of this kind; in others it is several times renewed; the patients void at intervals, more or less remote, a stream of blood, which, when received into a vessel, might be taken for blood drawn from a vein. Should these evacuations be renewed or continued, they are followed by perceptible sinking of the subject, who soon dies in an adynamic state. On opening the body, blood is found accumulated in the intestine, and no other lesion. Whatever be the severity of such a hemorrhage, it does not invariably prevent the recovery of the patient. In all the cases which we saw the individuals died; but M. Louis has seen three cases where, notwithstanding this hemorrhage, recovery took place.* In two of the cases which he records the blood was voided in the form of clots: some blood had been passed during three, four, and six days successively. In these three patients there was at the same time epistaxis, which in one of them was very profuse. Again, the intestinal mucous membrane may exhale blood in great quantity without this hemorrhage being indicated by the nature of the stools. Thus, in one of our own cases, it was not discovered till the *post-mortem* examination was made; the blood exhaled in the small intestine, which it filled, had not passed the ileo-cœcal valve.

If we consider diarrhœa in reference to the modifications which it may undergo from the therapeutic means, the different effects of which we have traced in our particular cases; first, we shall see that, in a great number of cases, the alvine evacuations were diminished or arrested after the application of leeches to the anus; whilst, in other cases equally numerous, these applications have had no influence whatever on the diarrhœa. With respect to the influence of emetics on diarrhœa, we may divide the individuals subjected to this treatment into four classes. In some the diarrhœa was increased, or showed itself for the first time after the administration of the emetic; in others the diarrhœa was momentarily increased, and then ceased in twenty-four hours; in other cases it ceased suddenly after the vomit; whilst in others it did not appear to be at all

* Since this was written, we too have met cases in which profuse intestinal hemorrhage, coming on during the progress of bad fevers, have not prevented the disease from terminating favourably. These hemorrhages take place in general only at a very advanced stage of the disease; yet we have very recently seen a case in which three pounds of blood at least were passed by the anus very near the commencement of the affection. The individual who forms the subject of this case had been ill but three days, and from that time he had fever without well marked symptoms, when, on a sudden, after having felt some colicky pains, he voided the above mentioned quantity of blood all at once on going to stool. After this discharge the patient was in a state of prolonged syncope. We gave him a small starch enema, with the addition of two drachms of extract of rhatany and a drachm of diascordium. Sinapisms were applied to the extremities, and a decoction of rice, with ice, was given him. The hemorrhage did not return; and the patient afterwards passed through the ordinary stages of typhoid fever, which terminated favourably.

influenced by emetics. With respect to quinquina, and other tonics given in the form of lavement, we have never seen them stop diarrhœa. When directly introduced into the stomach, they have been followed several times by a cessation of the purging. We have not ascertained that any favourable effect was produced in any case of diarrhœa by topical irritants, whether applied to the upper extremities or to the abdomen. The diarrhœa of convalescents has been frequently diminished by the employment of the half or fourth part of the ordinary starch enema, to which there is added from five to twenty drops of laudanum.

In the preceding remarks we have only considered purging as an accident which increases the chances of the disease becoming severe; yet some of our cases afford instances where, at the same time that the fever ceased, and the other symptoms improved, the diarrhœa, on the contrary, was visibly increased. In other cases we have seen it appear for the first time just at the very moment when also for the first time there appeared a tendency in the disease to a favourable termination. Sometimes again it comes on during convalescence, without appearing in any manner to interfere with its progress. It is facts of this kind no doubt which made the ancients think that in some continued fevers diarrhœa is *critical*, whilst in others perspiration constitutes the *crisis*. For our part we shall say that the cases of continued fever in which we saw the establishment of diarrhœa followed by any advantage are so few, that we cannot conclude anything from them with respect to the *critical nature* of this phenomenon. Here, however, we thought it right to cite these cases, because facts cannot be useful except by considering them in every point of view, and it is not devoid of utility occasionally to subject to new inquiries those points of doctrine which under the influence of theories different from ours formerly occupied so extensive a place both in science and practice. Was it observation, or mere theory, that induced Huxham to lay it down, that delirium and disposition to coma disappear as soon as purging sets in? Was it by facts that Pringle was led to consider diarrhœa as ordinarily serving for a crisis in the remittent fevers of which he has given us so valuable a description? He recommended that the purging in these diseases should not be checked too soon. Grant also considered diarrhœa to be the natural crisis of putrid fever. In our opinion all these ideas rest on facts which are real but incorrectly interpreted. The authors just now cited had seen, as we did, that at a certain period of fever diarrhœa ordinarily comes on; this is the fact, which observation must have supplied to them as well as to us. But with us, this diarrhœa is the natural result of the intestinal lesion, the existence of which has been ascertained in those diseases by anatomical research. With those whose theory taught them that every disease must terminate by the evacuation of the morbific matter, this diarrhœa which came on towards the termination of the fever must arise from nature's effort to accomplish this evacuation. In their time, as in our own, death must very often have occurred during the course of the diarrhœa; but then they admitted that the crisis had not been sufficient. In a word, the most powerful argument which they thought could be adduced in favour of their theory was, that in attempting to check, and in actually checking the purging, much mischief was done. I admit this, for in order to accomplish this they employed irritating substances which suppressed the stools only by very much aggravating the gastro-intestinal lesion. It was not then the suppression of the crisis, as they called it, that was injurious, it was the increase of irritation which they produced in the primæ viæ. This is no doubt a very remarkable instance of the difference of the theoretical conclusions to which persons may arrive by setting out from one and the same real and well-observed fact.

We have already spoken of meteorism, of its most frequent seat, and of its

connexion with the lesion of the intestinal mucous membrane. We have seen that residing principally in the colon; it could not be accounted for by any of the alterations discovered in this intestine* by *post-mortem* examination.

This meteorism does not usually come on till rather an advanced stage of the disease; it precedes or follows the occurrence of purging; it is sometimes only temporary, whilst sometimes, when once produced, it continues; it presents several degrees from that where it can be detected only by percussion, to that degree in which the colon is so distended that its form is accurately delineated through the abdominal parietes; when it has attained this degree, the large intestine occupies nearly the entire abdomen, and pressing against the diaphragm it produces most alarming dyspnœa.

Meteorism, to any extent, is a symptom which very much increases the unfavourable character of the prognosis. Whatever be its proximate cause, it always indicates a state of the system in which there is a great sinking of the powers of life, and progressive tendency to prostration, which is only aggravated by bloodletting.

Still, though this is a very alarming symptom, we must not forget that several of our patients who had it to a very considerable extent, recovered notwithstanding. We have not discovered any therapeutic agent which could act directly on it.

CIRCULATORY APPARATUS.

SECTION I.

LESIONS FOUND AFTER DEATH IN THE CIRCULATORY APPARATUS.

We shall in the next place trace those lesions in the heart, arteries, and veins.

The heart, whose action is uniformly disturbed in persons affected with continued fevers, very rarely presented on the dead body any appreciable alteration. In the great majority of the cases already reported by us, the heart was found to be in every respect in its normal state. In fact, out of ninety-eight† cases of continued fever, which terminated fatally, only thirteen presented any trace of morbid change in the heart, and in some of those the change was very slight; thus in those thirteen we twice found nothing else than unusual paleness of the tissue of the heart. Another time this pale colour coincided with a flaccid state of the heart's parietes. On two occasions the muscular substance of the heart appeared to us to have lost its ordinary consistence, and six times it presented an unusual red tint, either in its substance, or on its inner surface.

* The exhalation of a great quantity of gas into the intestine is so independent of an inflammatory state of this part, that, on the one hand, we see tympanitis developed in cases where there certainly exists nothing resembling an enteritis, as in certain neuroses, and, on the other hand, it is not observed in phthisical subjects, whose intestines present all possible varieties of inflammation. We do not remember to have seen well-marked tympanitis, except in one patient, of this latter description. This case appeared so much the more striking, as after having continued for a certain time, the gaseous secretion ceased all at once. This individual had purging, gases had been passed in great quantity by the anus, and yet the abdomen, which was very inflated, did not diminish in size. This tympanitis continued for nearly three weeks. At the end of this time the abdomen returned spontaneously in the course of forty-eight hours to its ordinary size, without the patient having passed by the anus more gases than on the preceding days. This patient died a little after. Cavities were found in his lungs, ulcerations and tubercles in the intestines.

† Only the more interesting of those ninety-eight cases have been here given.—Tr.

If we compare, on the point of view now before us, our observations with those of MM. Bouillaud and Louis, we shall find a discordance between their results and ours. For, whilst the cases in which we have met the heart free from all appreciable lesion, are much more numerous than those in which the heart no longer appeared in its normal state, the two observers just named have arrived at the very opposite conclusion. Thus, in forty-nine autopsies, M. Bouillaud found the heart in its normal state only twelve times. In fifty-four autopsies, M. Louis found the heart in its natural state only twenty-seven times. It may be observed that the morbid changes found by them in the heart are of the same nature as those mentioned in our own cases. Thus the heart was found paler than natural three times by M. Bouillaud, and five times by M. Louis. It was found redder in its fleshy tissue, or on its inner surface, eleven times by M. Bouillaud, and three times by M. Louis. Again, the former observer found it diminished in consistence seven times, and the latter twenty-four times; but in these 31 cases, it was seldom that any considerable softening was observed; most frequently it was but a state of flaccidity, or else a less resistance than usual to the efforts made to tear the substance of the heart.

We shall see presently how far we shall be able to explain the difference of the results now noticed. We must say, however, beforehand, that we have been able to pay less attention than M. Louis to the changes in the heart's consistence, and that they may have escaped us several times, but the same thing cannot be said of the redness both of that of the heart and of the vessels, and we are quite sure, that every time we did not note this phenomenon, it did not exist.

To sum up, out of two hundred and one *post-mortem* examinations of persons who died of continued fevers, we found one hundred and twenty-four in whom the heart was in its *normal*, and seventy-five in whom it was in the anormal state.

Let us now follow up our examination of the circulating apparatus in persons who died of continued fevers, by studying the state of the vessels in them.

In the sixty-five cases examined by us, we found the aorta coloured red on its inner surface only six times, and the veins in nearly the same proportion.

Out of the thirty-three other cases which also fell under our observation, there were seven in which we detected this same redness.

Our cases presented to us no other alteration in the vessels but this redness, with the exception of one in which we found some of the veins filled with pus.

Out of the forty-nine *post-mortem* examinations of patients who died of continued fevers, reported in the work of M. Bouillaud, there were but eight in which this author detected any redness on the inner surface of the vessels.

In the four cases cited by M. Bouillaud, the individuals in question presented, after external lesions, or after accouchement, all the symptoms of adynamic fever, in whom, after death, several veins were found ulcerated on their inner surface, covered with false membranes, or full of pus.

Out of fifty-four cases observed by M. Louis, there were twenty in which the aorta was red.

Thus out of two hundred and one individuals who died of continued fevers, we find one hundred and fifty-five in whom the vessels were in a normal state, and forty-six in whom there was an anormal state of these same vessels.

But does this anormal state exist during life? Has it performed any part in the production of the symptoms? Is it produced only after death? Has it been taken for a disease, when it was but a cadaveric lesion?

Before discussing those important questions, we should remark, that both in the individuals who fell under our own observation, and in those whose cases have been reported by MM. Louis and Bouillaud, the symptoms differed in no respect from the symptoms observed in persons whose heart and vessels were found in the normal state. This identity of symptoms has also been observed

by M. Louis. M. Bouillaud has thought that the symptoms of what is called inflammatory fever should be referred to an angeio-carditis, which was proved only by the red colouring of the internal surface of the heart and vessels. But on the one hand we have cited some instances wherein these symptoms were similar to those given by M. Bouillaud, as appertaining to inflammatory fever, and in which there was not any redness, either in the heart or in the vessels. On the other hand, M. Bouillaud himself states, that he has found this same redness in the fever called putrid or adynamic. He has also met it in a certain number of persons who died in the last stage of pulmonary phthisis, and who were wasted by hectic fever. This redness did not then belong exclusively to inflammatory fever, according to M. Bouillaud's own researches.

It was met in every fever; it might be its cause, or at least, its anatomical character. But who does not know that redness of the heart, as well as of the vessels, is wanting in a very great number of individuals who have died of some form or other of fever?

But further; this redness is not confined merely to cases of what are called essential fevers. We have frequently met it in persons who have died of diseases totally different. On referring to our notes, we find the following to be the results of our observations on this matter: —

1. State of the heart and vessels in persons who died of some other disease, whilst they had fever.

	Times.
In seven cases of acute peritonitis, there was redness of the heart and aorta	5
In five cases of puerperal peritonitis	3
In ten cases of acute pneumonia	1
In sixty-one cases of pulmonary phthisis with hectic fever	9
Total. In eighty-three cases of febrile disease	18

2. State of the heart and vessels in persons who died without fever.

	Times.
In thirty-one cases of organic lesions of the heart, there was redness of the heart and aorta	11
In nine cases of apoplexy	2
In five cases of chronic peritonitis	1
In thirteen cases of chronic gastritis	3
In two cases of cancerous affections of the liver	1
In four cases of ascites with atrophy of the liver	1
In six cases of encysted dropsy of the ovary	2
In five cases of tetanus	2
Total. In seventy-five cases of disease not febrile	23

On comparing the result of No. 1 with that of No. 2, we see that fever seems to be so little either the effect or the cause of the redness of the heart and vessels, that this redness is found more frequent in the second table, containing cases of persons who died without fever.

If in all these different cases, as well those of continued fevers, as others, we examine, by way of comparison, the redness of the inner surface of the heart and vessels, we find it always the same: it is always a uniform colouring, entirely different from the numerous shades of inflammatory redness observed everywhere else. It is a colouring similar in appearance to the yellow tint presented after death, either by the internal surface of the gall-bladder, or the portion of intestine in contact with it. In such cases the vessels never presented those dif-

ferent degrees of injection, and other alterations, which M. Gendrin produced, either on their internal surface, or in the substance of their tunics, by irritating those organs in animals.

Let us now endeavour to appreciate the nature of the changes found in the heart and vessels of persons who have died of continued fevers, and let us strive to determine the part which they have performed in those diseases of similar morbid changes.

Those changes are reducible to the following : —

1. Thickening and ulcerations of the internal membrane of the veins ;
2. Pus, or false membranes in the interior of these vessels ;
3. Diminution of the heart's consistence ;
4. Loss of colour of the fleshy substance of the heart ;
5. Redness of the internal surface of the heart ;
6. Redness of the internal surface of the arteries ;
7. Redness of the internal surface of the veins.

The thickening, and ulcerations of the veins, the false membranes deposited on their internal surface, show that those vessels were the seat of a process of irritation ; in this process it might be the origin of the disease, or, at least, it might have its share in causing some of the symptoms. This took place in the case cited by M. Ribes ; after a gangrenous phlegmon of one of the hands, phlebitis came on, then ataxo-adynamic symptoms, in the midst of which the patient died (delirium, livid countenance, meteorism, black incrustations of the tongue and teeth, &c.). On examining the body, the veins were found filled with pus, their parietes thickened, and their internal surface ulcerated. M. Breschet, more recently M. Dance, and M. Le Gallois, have cited cases of phlebitis, which seemed to be the origin of the adynamic fever. But we have no hesitation in stating that out of one hundred cases of persons who have died of typhus fever, there is scarcely one found where the veins shall present any of the alterations now in question.

With respect to the cases where we find nothing else in the veins but pus mixed with blood, that is no proof that there was disease of these vessels ; for it may have been absorbed by them. But its presence in the blood may be considered as producing real poisoning ; the result of which may be the symptoms of adynamic, putrid, typhoid, &c., fever.*

Here, then, are cases wherein the changes found in the vessels were produced during life, and performed an evident part in the symptoms.

Let us now try whether the same may be said of the other morbid changes.

Had the diminution in the heart's consistence, so often noticed by M. Louis, any share in the production of the disease? We do not think so ; for we have found it in several other cases, where the individuals having died of the most different diseases, whether acute or chronic, presented no symptom of typhoid fever. Neither do we think that we can attribute this diminished consistence to an inflammatory state of the heart. We think that the softening of the heart's tissue is very frequently a state produced only after death. In fact, almost every time that we opened the bodies of persons in whom there were manifest signs of putrefaction a little advanced, we found the tissue of the heart remarkably soft ; it was so friable, that very slight dragging was sufficient to tear it ; even the finger could be forced into it with the greatest ease. But there are bodies in which putrefaction commences much sooner than in others ; in these the heart may be found very soft, though the examination may have been made only a little time after death. This cadaveric softening is ordinarily accompanied by a livid or purple redness of the heart's tissue. In the cases

* This point of doctrine has been particularly elucidated, in latter times, by the writings of MM. Ribes, Gaspard, Breschet, Bouillaud, Blandin, Velpeau, Gendrin, Dance, Le Gallois.

where it may be supposed that a diminished consistence took place during life, its cause escapes us ; and far from considering it a lesion, which could be the origin and cause of the symptoms, we might be rather inclined to admit that the softening is one of the products of this same disposition, which, with any lesion whatever, produces in some persons the state called adynamic ; or which, still continuing its influence after the termination life, liquefies the blood prematurely. These are points to be illustrated by new researches. Only we shall here observe, that there are subjects in whose body there is found, at one and the same time, a singular diminution in the consistence of several organs : the heart, lungs, liver, spleen, and kidneys, all present remarkable friability ; they present no other lesion, and it is no longer after such or such a disease, that a similar state is found. We have cited a very remarkable instance of this general softening in a former part of this work.

Neither is the loss of colour of the fleshy substance of the heart, which has been observed in some who have died of typhus fever, peculiar to this kind of disease, and, in the present state of science, we cannot assign to it any share in the production of some of the symptoms of fever.

We have already seen that redness of the inner surface of the heart and vessels may be met in an almost equal proportion after all diseases. Let us see, however, what may be its influence on fevers ; for this purpose let us study its nature, and investigate the causes of its development.

The following table, drawn up from the observations of MM. Louis and Bouillaud, and from several of our own, will present at first a remarkable coincidence between the frequency of redness in the heart and vessels in the different months of the year, and the elevation of temperature in these months.

Number of times the redness was found.		Number of times the redness was not found.	
January	3	January	10
February	1	February	8
March	4	March	2
April	3	April	3
May	2	May	3
June	6	June	8
July	9	July	3
August	14	August	4
September	6	September	2
October	3	October	4
November	2	November	8
December	4	December	13

On considering this table, it will be found that during the four months when the temperature is lowest (November, December, January, and February), redness of the vessels has been observed less frequently than in the other eight months ; that during the four months when the temperature is at a mean (October, March, April, May), this redness was detected more frequently than in the winter months, but much less frequently than in the four months of the year when the temperature is most raised (June, July, August, September), and yet in these four last months the redness of the vessels is not found with equal frequency in each. The months of June and September present less cases of redness than the months of July and August, and, in a word, it is during the latter, which is in general the hottest month of the year, that the greatest frequency of vascular redness is found.

If we now proceed in a similar way for other diseases besides fevers, we shall again arrive at a similar result; and we shall always find that the hottest

months of the year are those in which redness is most frequently found on the internal surface of the heart and arteries, so that the following law may be laid down : —

Whatever may have been the disease which occasioned death, the frequency of vascular redness is proportioned to the elevation of temperature.

This law includes in it the consequence that the temperature acts a considerable part in the production of the red tint of the heart or vessels.

Still mere elevation of temperature cannot account for all the cases wherein this red tint is found, since, on the one hand, it is present in cases where the dead bodies were subjected to a very low temperature, and, on the other hand, it is wanting in individuals whose bodies were examined during the warmest months. The solution of the problem before us calls for the introduction of new elements.

One of the most important of these elements is, no doubt, the time which elapsed from the moment of death to the time when the body was examined.

In one hundred and ninety-two persons who died of continued fevers or of other diseases, in which the number of hours that elapsed before the autopsy took place was noted by us or by others, we found that redness or paleness of the internal surface of the heart or vessels was distributed in the following manner : —

Time which had elapsed since the patient's death. Hours.	Cases of redness.	Cases of paleness.	Time which had elapsed since the patient's death. Hours.	Cases of redness.	Cases of paleness.
10	2	0	30	9	2
11	0	1	31	7	0
12	0	1	32	0	0
13	0	1	33	1	1
14	0	2	34	6	2
15	1	3	35	3	0
16	0	4	36	7	2
17	0	5	37	4	0
18	1	4	38	3	0
19	1	7	39	1	0
20	1	6	40	6	0
21	1	12	41	0	0
22	1	11	42	3	0
23	3	8	43	4	1
24	6	10	45	1	0
25	2	5	46	0	0
26	2	6	47	0	0
27	2	2	48	5	0
28	6	1	53	2	0
29	3	0	60	5	0

The following are the results of this table : we find

	Cases of redness.	Cases of paleness.
In the first 24 hours after death	17	74
From 24 hours exclusive, to 30 hours inclusive	24	16
From 30 hours exclusive, to 40 hours inclusive	38	5
From 40 hours exclusive, to 60 hours inclusive	20	1

These results induce us to lay down the following law : —

The frequency of the cases wherein redness is found on the internal surface

of the heart or vessels, is proportional to the length of time which elapsed from the moment of death to the moment when the body was examined.*

Combining this law with the preceding, we come to the conclusion that whatever may have been the disease and the kind of death, the frequency with which vascular redness is observed depends on the greater elevation of temperature at the time the body is opened, and on the length of time that has elapsed since the patient died.

Still, are these two conditions, which act only by favouring the development of putrefaction, the only ones which produce the red colouring of the heart and vessels? Certainly not; for on the one hand, we find this colouring in two bodies which were opened only ten hours after death during the months of March and December; we find it in another body which was opened fifteen hours after death during winter. On the other hand we find this same red colour wanting in a body which was opened forty-three hours after death in the month of June, and in two other bodies which were opened thirty-six hours after death, in the months, however, of November and January.

How shall we account for these cases? Shall we say that the redness, which is cadaveric in some, is not so in others, and that it must then be considered as having existed during life, and as being of an inflammatory nature? Such a distinction could not be admitted; but we think that, according to the nature of the disease of which the individuals died, as also according to the kind of death, putrefaction may commence at very variable periods, and that in such cases the phenomena which announce it may manifest themselves a very few hours after death. We have a striking instance of this in our 47th case. One of these phenomena is the spontaneous separation of the elements of the blood, the return of this blood to the liquid state, and its imbibition by the solid parts with which this liquefied blood is brought in contact.

Thus, then, during winter, and at a period not far distant from the time when death took place, the vessels may happen to be found coloured, whether the blood which they contain may or may not at the same time have become liquid. This is still but a cadaveric phenomenon, still attributable to the special conditions in which the nature of the disease consigned the subject to the influence of physical laws at the time when life was extinct in him.

With respect to the very few cases in which, notwithstanding the length of time since the patient's death, the vessels were found white, we must, in order to account for them, admit a disposition the reverse of the preceding, in virtue of which putrefaction, far from being advanced, was, on the contrary, retarded.

It may also be remarked, that the cadaveric phenomenon of vascular colouring is not the only one which thus partly depends on the circumstances, whether physical or organic, in the midst of which life was extinguished. Do we not, for instance, observe varieties, according to the individuals, in the colouring of the intestines with bile, in the presence of serous or sanguineous effusions into different cavities, etc. ?†

From what has been just said, we shall draw the following corollaries: —

1. The red tint, which is occasionally observed on the internal surface of the heart and vessels in persons affected with continued fevers, performs no part in

* By means of this law we can perfectly account for the very small number of times that we detected redness on the inner surface of the heart or vessels in the cases contained in the present part of this work. Convinced of the great importance of opening the body as soon as possible after death, we very seldom made a *post-mortem* after twenty-four hours, and very often the autopsy took place before this time.

† By these different facts, the law laid down by M. Dutrochet will be further confirmed, in virtue of which *exosmosis* has a tendency to replace *endosmosis* every time that a liquid contained in a cavity has a tendency to putrefy.

the production of some of these fevers; it does not even concur in the production of any of their symptoms.

2. This red tint is observed indiscriminately after all diseases, after those accompanied with fever, as well as after those which were free from fever.

3. It should be considered as a cadaveric phenomenon, the more or less rapid production of which depends on certain conditions, which may all be resolved into a single one, namely, the more or less rapid tendency of the dead body to putrefaction.

The blood contained in the heart and vessels of persons who have died of bad continued fevers has engaged particular attention in latter times. It has been said, that after these diseases the blood has been usually found altered; sometimes, it is said, the clots which it presents are remarkable for their extreme softness; sometimes these clots do not even exist; the fibrin is now observed in the form of small fragments, without cohesion, which floats scattered through a reddish serum; sometimes these fibrinous fragments disappear, and the blood now presents everywhere nothing but a completely liquid mass, either of a deep black colour, or of a clear rosy tint, resembling, in this latter case, water in which a small quantity of red colouring matter was dissolved.

We have met these different appearances of the blood in several bodies of persons who died with the symptoms of bad fever (Cases 8, 11, 13, 14, 24, 25, 29, 32, 47). In the subject of the 14th case, the heart contained clots similar to those usually found in dead bodies, but the liquid contained in the aorta did not resemble blood; it was a matter having the colour of wine lees, as it were sanious in some parts, bearing some resemblance to the unhealthy fluid contained in some abscesses.

But in several other subjects who, during life, still presented symptoms similar to the preceding, we found no such appearance; the blood contained in the heart and vessels presented the appearance observed in most dead bodies; it consisted of a clot of greater or less consistence, deprived, or not, of colouring matter.

If we now enquire what are the different appearances which the blood presents in the bodies of persons who have died of other diseases besides bad fevers, we shall also find that, in those diseases, whatever may have been their nature, the heart and vessels occasionally contain a liquid dissolved blood, like the blood of some typhoid fevers; and we think, that if the number of the cases where the blood presented this appearance appears to be greater in typhoid fevers than in other diseases, it is because more particular attention has been paid to this point in fevers.

For our own part, we shall say that, since we applied ourselves to the examination of the blood in all dead bodies, we have several times found it in a liquid state in every species of disease; and to speak only of the cases contained in this present part, it will be recollected that such was the state of the blood in the individual affected with tetanus, who forms the subject of Case 30.

Thus, then, in continued fevers, the cases in which the blood is found perceptibly changed are not more numerous than those wherein the blood presents what we consider its normal state; the cases of fevers where this liquid appears altered differ in no respect with regard to the symptoms from those wherein it appears not to be so; and, in a word, similar alterations of the blood are observed after other diseases which bear no resemblance whatever to typhoid fevers.

Among the cases wherein the blood is found liquid in the vessels there are some in which this liquid state coincides with different signs of putrefaction. We then, at the same time, find the parietes of the heart softened, and a red tint is observed on its internal surface, as also on that of the vessels. This liquid state of the blood is likewise more frequently met when the bodies are opened during an elevated temperature, and a long time after death. However,

there are other cases where this is not the case ; then it must be admitted that causes inherent in the subject himself prevented the blood from coagulating in the dead body, or, after it had coagulated, accelerated its return to the liquid state. We have sometimes found the internal surface of the vessels white, notwithstanding the liquid state of the blood which was in contact with it. But we think it probable that, in cases of this kind, the vessel would have been found coloured, if the body had been opened at a later period.

If, with respect to the state of the blood in persons who died of continued fevers, we compare our own observations with those of some other authors, we shall find that they have obtained results similar to ours. Thus, in the Observations on Entero-Mesenteric Fever, published by MM. Petit and Serres, there is no mention of the liquid state of the blood, though in all these cases the state of the heart was carefully noted. Neither has M. Trousseau noticed this liquid state in the cases of Dothinenterite which he has published. M. Bouillaud, who admits, in a general way, that in bad fevers the blood is found to be liquid and dissolved, has, however, met this state of the blood only in three cases in fifteen cases of putrid fever detailed in his work. Among the fifty-four cases of M. Louis there are but three where mention is made of the liquid state of the blood ; and the well-known accuracy of this physician is a sufficient guarantee that, if he had met it oftener, he would not have failed to mention it.

We therefore think we may lay it down that, in the present state of science, the part ascribed to the blood in the production of a certain number of bad fevers may be much better proved, either by the nature of the external influences which have acted on the individuals, or sometimes by the nature of the symptoms themselves, than by the existence of those changes in the blood discoverable by anatomy. Let us not again compromise the cause of humourism by requiring from the facts within its domain more than they are yet able to give.*

The spleen, of which we shall here speak as being a probable dependent on the circulating apparatus, is one of the parts which has been most frequently found changed in individuals who have died of continued fevers. In the great majority of cases we found it at one and the same time perceptibly increased in size, and very much softened. By gently pressing it under a stream of water, there was forced from it a considerable quantity of a substance resembling wine lees, and by thus reducing the spleen to its parenchyma, which was not changed, it was restored to its natural size. Its increase in bulk then depended on the unusually increased quantity of matter contained in its cells, as its soft state was owing to the diminished consistence in the same substance.

In one case only have we found the spleen both softened and small in size.

In another instance, we saw it very small, and very dense. We have sometimes found the spleen in its normal state, both with respect to its size and consistence.

Thus the very remarkable alterations of the spleen in continued fevers, are almost as frequent as the intestinal alterations are in these same diseases ; but they are not more constant than the latter, whatever be their extreme frequency.

The most ordinary lesion presented by the spleen in continued fevers, namely, increase of size with softening of its tissue, is not connected with the existence of dothinenterite. We have met it without there being in the intestine any trace of an affection of the follicles, but merely an intestinal erytheme.

We have also observed increase in the size of the spleen, with softening of its tissue, in several other cases where the digestive tube was perfectly healthy, and where the typhoid symptoms had their origin and cause elsewhere.

* We should not, however, forget that the experimentalists, who injected putrid substances into the veins of animals, say that they found the blood in a liquid state.

On the other hand, two cases presented the spleen in its normal state, though the small intestine was ulcerated, and the mucous membrane of the stomach was red in one case, and brown in the other.

Neither is softening of the spleen, with increase in its size, connected with certain states of the blood. Whatever the appearance of the latter was, we found the same lesion in the spleen.

This lesion forms from the very commencement of the disease; thus M. Louis found the spleen soft and large in two individuals, one of whom died on the 8th, and the other on the tenth day of the disease. We also detected the existence of this lesion in an individual who died on the 11th day. On the other hand, we also found it in persons who died at all periods of the disease, even up to the forty-sixth day. It would appear from the researches of M. Louis, that the spleen was more frequently found large and soft, in persons who die before the thirtieth day, than in those who die after this period.

Again, it is not only in persons who die of bad fevers, with or without morbid alteration of the digestive passages, that the spleen is found to be much softer than seems to be compatible with its normal state. We have found this same soft state carried to an extreme degree, in the bodies of individuals who died of diseases of the most different characters, with fever or without fever, and in whom no particular symptom had indicated softening of the spleen. But what appears satisfactorily proved is this, that this organ is not found softened in any disease as frequently as in continued fever; more particularly in none is it found so frequently increased in size.

In the present state of science, we can offer only mere conjecture with respect to the cause which, in continued fevers, thus diminishes the normal consistence of the spleen, at the same time that it increases its size. We cannot say more regarding the nature of this lesion. We shall only remark, that Dr. Bailly has also ascertained its existence in individuals who died during the accession of bad intermittent fevers, whatever may have been the prevailing symptoms of this fever. We may now observe, that so frequent a lesion should not be lost sight of, every time we endeavour to trace the causes and nature of fevers.

The physician just mentioned has published several cases of bad intermittents, where the softening of the spleen was carried so far that this organ was actually torn. We have observed this spontaneous rupture of the spleen only once, and that in the case of an individual who had had follicular enteritis with typhoid symptoms. This man, who was twenty-five years of age, died at the Pitié, after being nine or ten days ill; it was remarked, that a few hours before dying, he suddenly began to sink; on the preceding day, in the midst of his delirium, he had fallen from his bed on the floor.

We found several pounds (*livres*) of black, liquid blood, effused into the peritoneum: we instantly examined whether some large vessels had not been ruptured; we discovered no alteration in any of them; but the spleen presented, on its external surface, two oblong rents, through which the blood contained in this organ seemed to have escaped, so as to fill the peritoneum. This spleen, which was very large, was reduced to a real black softish substance, by the slightest pressure. We reckoned in the intestine forty elliptical patches, all projecting above the level of the mucous membrane; only one of them was commencing to ulcerate. Between them the pale mucous membrane was traversed by a great number of solitary cryptæ, very much developed. These same cryptæ existed in the large intestine. The mucous membrane of the stomach presented a bright red pointing through the entire extent of the great cul-de-sac; in every part where it was red, it was softened.

SECTION II

LESIONS OF THE CIRCULATORY APPARATUS OBSERVED DURING LIFE.

The functional disturbances of the circulatory apparatus, generally comprised under the generic term fever, will be better studied, and better known, if, as we have done elsewhere, with respect to the term *inflammation*,* we consider separately and distinctly each of the phenomena which concur with others in the production of the complex and indeterminate state called *fever*.

The pulsations of the heart in our patients presented nothing but different degrees of frequency and strength, always proportioned to the different degrees of frequency and strength in the pulse.

The circumstances to be studied in the arterial pulsations are: 1st, their strength; 2d, their frequency; 3d, their regularity.

Nothing was more variable in our patients than the strength of the pulse. Sometimes from the very commencement of the affection, it was small, and extremely compressible. At other times it retained considerable resistance up to the moment of death, and gave a sensation of fulness to the finger which pressed it. In some of our patients we saw life cease, when the pulsations of the artery had still considerable strength. In several individuals, the pulse was neither stronger nor weaker than in the ordinary state of health. In general, possessing considerable strength and fulness at the commencement of the disease, it continually became weaker and more compressible, according as the adynamic symptoms became more marked. However, in a considerable number of cases, the strength of the arterial pulsations formed a striking contrast with the state of prostration into which the patients appeared to have fallen. In several the pulse, very weak at certain times of the day, was raised, and acquired considerable strength, particularly towards night.

The frequency of the pulse was found to be increased in the great majority of cases: it was generally more considerable at night. When this frequency is such as not to exceed from ninety-five to one hundred and twenty pulsations in the minute, this sign, separately considered, should incline one to form a favourable prognosis. This prognosis, on the contrary, becomes very unfavourable, if the arterial pulsations exceed one hundred and forty per minute, and particularly if their frequency has not diminished, or has increased after several abstractions of blood.

In the great majority of our patients, the pulse becomes frequent only a longer or shorter time after their health has commenced to be deranged; in some, the acceleration in the circulation was preceded by mere general illness, without any local functional disturbance that was at all perceptible; sometimes, and this case was more usual than the preceding, there were different symptoms referrible to the digestive organs, and particularly diarrhœa.

In other patients, the accelerated circulation, accompanied with elevation of the skin's temperature, preceded every other morbid phenomenon, and it was to no purpose then that one should endeavour, by interrogating only the symptoms, to seek the cause of this disturbance of the circulation in the suffering of any organ; this febrile disturbance continued thus, distinct from every other apparent disorder, for between twenty-four to fifty hours: then local disturbances came on, and they were almost invariably directed towards the primæ viæ.

In others the accelerated circulation, with increased heat of skin, and without any other apparent local disturbance, continued for a much longer time, and after

* Pathological Anatomy.

having lasted for several days, the fever ceased without our being able to detect in the system any other lesion than the fever itself. However, we must not forget that in some cases of this kind which terminated fatally, we found in the intestine traces of an acute affection of the follicles. In these numerous cases of slight fevers, without any appreciable local disturbance, and which terminated in a return to health, did this termination take place spontaneously and merely by adopting an expectant mode of treatment, or in consequence of a shock being given to the system either by emetics or bleeding? We certainly would not say so; and in this case, till more ample information be obtained, is it not strictly conformable to the true scientific spirit to give a denomination derived from the symptoms to a disease, the organic cause of which can frequently be only suspected or admitted by an analogy, which is any thing but accurate, since it is not to be doubted that what are called essential fevers may have their seat elsewhere as well as in the digestive tube?

Lastly, in several patients we have seen all the local symptoms disappear, and yet the febrile disturbance still continue for some days. Has all local lesion disappeared then, or does it still continue, but indicates itself only by the disturbance of the circulation? We would be more inclined to admit this second hypothesis; and to give it some weight, we would refer to those cases of pneumonia, which at a certain period of their existence, are indicated only by fever, all the local symptoms having completely disappeared. In these cases, before percussion and auscultation were understood, it would have been said that the fever survived the pulmonary lesion; and yet, though there is then neither cough, nor dyspnœa, nor expectoration, nor thoracic pain, auscultation shows that the lung is far from having returned to its normal state.

We must distinguish the case of which we have now spoken from that where, after the disappearance of all the symptoms, no other irregularity is observed except mere frequency of the pulse, which is oftentimes connected with the state of convalescence, which is kept up by continuing meagre diet for too long a time, and which disappears according as the patient takes nourishment and recovers strength.

The pulsations of the heart and arteries, instead of being accelerated, become remarkably slow in some of our patients; or else, in the midst of the most alarming symptoms, they scarcely deviate from their normal state. We have principally observed this natural state of the pulse, or its slow state, in cases where the nervous symptoms predominated. It has served us, in several cases, to distinguish a fever which had its origin in the brain from another, the organ of which was in the digestive tube. However, even in this latter case, and with the existence of a dothinenterite, it may happen that there will be a slow pulse.

Slowness of the pulse in persons labouring under bad fevers has been noticed by several observers, and they have generally considered it as a very unfavourable sign. But what they have not stated, and what we have several times observed, is, that certain individuals, whose pulse had been frequent during the entire course of the disease, present remarkable slowness of the pulse at the time of their convalescence. One person, among others, had had all the symptoms of what is called adynamic fever. At the time when he might be considered as completely convalescent, the pulse which had gradually lost its morbid frequency, became all at once very slow: for some days it was but from 36 to 38 per minute; it then rose to 40, then to 50; and when the individual left the hospital in a very good state of health, his pulse was from 70 to 72, which was proportioned to his age and constitution.

We have but seldom observed irregularity of the pulse; in the cases in which it took place, we have not seen that this character of the pulse exercised any influence on the other symptoms, on the progress of the disease, on its severity,

or on its termination. In one of the cases in which we found the pulse irregular, there was a great quantity of worms in the digestive tube. One patient presented to us a curious anomaly : his pulse, irregular as long as the affection was slight, became regular according as the symptoms became unfavourable. In another, the pulse, after having presented the greatest regularity during the entire course of the disease, became irregular during convalescence. Every time we found the pulse irregular in persons labouring under continued fever, we have been inclined to suspect that this irregularity depended less on the disease then present than on an organic lesion of the heart, and, on seeking for the latter, we have frequently detected its existence in such cases.

The modifications which the pulse undergoes in point of frequency, almost always bring with them some modification in the temperature of the skin.

Most frequently, in continued fevers, an increase in the frequency of the pulse is accompanied by an increase in the heat of the skin ; but we do not always observe a strict relation between an acceleration of the circulation and increase of temperature. The heat may be very intense in cases where the frequency of the pulse is but moderate ; this heat may, on the contrary, be scarcely developed in other cases where the pulse has become extremely frequent.

More frequently than in any other disease, increased heat of skin coincides in bad fevers with a peculiar dryness of this membrane. It is in these affections principally that we observe that acrid heat in which the skin at times cannot be touched even for a few moments in succession without experiencing any uneasy sensation, and sometimes even real pain.

In the greater number of patients the increase in the skin's heat becomes more considerable towards evening. What particularly struck us in some was a great inequality in the distribution of the heat. In others, one and the same part presented for some hours the most rapid alternations of an almost icy coldness and extreme heat.

Increase in the temperature of the skin does not necessarily follow every intestinal irritation, however intense the latter may be ; we have seen cases of dothinenterite of a very acute form, and which reached the stage of ulceration, when death supervened, in which, however, the temperature of the skin always remained natural. We have seen among others a striking instance of this in the young girl who forms the subject of our 18th case. In her, the intestines were found very much ulcerated, and yet it was only forty-eight hours before death that she presented any heat of skin. In this patient nervous symptoms chiefly predominated ; during life everything seemed to indicate that the seat of the disease was in the encephalon, or rather in its membranes ; still it was only in the intestines that any lesion was detected. From this fact we shall draw the conclusion that absence of heat of skin in an individual who presents the symptoms of what is called ataxic fever, is not, as has been stated by some, a sufficient reason for asserting that the disease has not had its primary seat in the digestive passages.

Though in most cases the heat of skin disappears some hours before death, we have seen instances in which life ceased at a time when the temperature of the skin was very high ; we have seen other cases in which it was only during the last days of existence that the skin was hot.

The diminution in the temperature of the skin may appear under different forms, and at different periods of the disease. First, in several cases, the commencement of the disease is ushered in by that sensation of cold which constitutes shivering. After some moments or some hours, it is succeeded by heat, and does not reappear. But this shivering at the commencement of the disease is very frequently entirely absent.

Whether the disease may have commenced by shivering, or whether it comes on only after some days of general illness, namely, headach, loss of appetite, and

even diarrhœa, or whether the fever may have set in without having been preceded by any shivering, it happens, in some cases, that during the course of the disease the shivering appears periodically, most commonly towards evening; sometimes every day, sometimes only every two days. This shivering is followed by an intense heat, and the latter is succeeded often, but not always, by sweat more or less profuse. These accessions may be renewed a certain number of times, they then cease, and the disease assumes a simple continued form. We have seen these accessions disappear after the employment of the most opposite means, sometimes bloodletting, sometimes quinquina, sometimes emetics; at other times we have seen them disappear spontaneously, after the patient had continued for some days in the hospital.

In the greater number of our patients we observed no alarming symptom to accompany the return of these accessions; in others they resembled genuine accessions of malignant fever. In one of these cases the return of these accessions seemed to be prevented by the administration of quinquina in the form of lavement: in another case this means was not resorted to, and death took place after the third accession.

In persons labouring under bad fevers other forms of cold are observed which no longer resemble the shivering or febrile accession. We then observe the skin suddenly lose its heat, either over its entire extent or in some parts only, and present a cadaveric cold feel, which sometimes continues till death, and is sometimes followed by the return of heat.*

We have seen some patients in whom the continued fever had been preceded by fits of intermittent fever. We have seen other patients in whom intermittent fever came on during convalescence from continued fever.

One of these patients was a girl 16 years of age. When she entered the Charité she had a slight continued fever, which yielded to strict regimen and rest. Being convalescent for a little time she did not recover strength; her countenance was very pale; she felt at intervals transient shiverings followed by heat, but never by sweat. Sometimes these attacks appeared only every four or five days, sometimes they returned several times on the same day. The patient continued in this state for three weeks. At the end of this time she had six regular fits of tertian fever, the return of the seventh was prevented by the employment of quinquina. The patient soon left the hospital in good health.

The other patient, convalescent from an inflammatory fever, was preparing to leave the hospital, when, without any known cause, he was attacked with a well-marked tertian fever. It was cut short by quinquina, after the sixth fit.

A third patient was also labouring under a continued fever when he entered the hospital. After about ten days, the pulse being but of moderate frequency, a violent shivering, followed by heat and sweat, took place in the afternoon. Three similar fits reappeared on the following days, under the tertain type. In the intervals between the fits there was complete apyrexia. This intermittent fever ceased spontaneously after the fourth paroxysm.

We have already seen the appearance of the blood after death, both in the heart and vessels. Let us now recapitulate the results of our observations with respect to the qualities of this same blood when drawn from the vein during life.

Out of a great number of cases of venesections in which the state of the blood

* The cadaveric coldness is not invariably an infallible sign of death. We had recently an opportunity of seeing an individual labouring under a chronic affection of the stomach, in whom, two months at least before death, the skin was so very cold three or four times, that one would imagine that he was touching a dead body. At the same time the pulse was gone, and the respiration became almost imperceptible; the patient seemed in the last struggle. This state continued for twenty hours, then the skin became hot again, the circulation was re-established, and the individual returned to his natural state.

is described, we find but twelve in which the blood presented a buffy coat, which was rarely thick and dense, but most frequently thin and soft. Among these two, who had the vein opened twice, yielded blood which presented no buffy coat the first time, and buffed blood the second time. In one of these there was nothing to account for this difference in the appearance of the blood at the two bleedings. In the other the second bleeding was employed to combat a pneumonia which had come on during convalescence; but every time there was a complication of pneumonia, still no buffy coat was observed. Then the individual who forms the subject of the first case was bled three times; the third bleeding, which was resorted to during the existence of a pneumonia, was not more buffed than the other two.

In several patients the crassamentum was remarkable for its great softness, and for the total absence of retraction.

In others the blood drawn from the vein presented an appearance which indicated a more marked change of this fluid. Thus in the subject of our seventeenth case, the blood resembled currant jelly; and it was in this same case that the aorta was found after death filled with a peculiar sanious sort of blood already described. The blood was not less changed in one of the individuals affected with small-pox, whose case has been given; beneath a very thick buffy coat we found no trace of crassamentum, but only a sort of lees formed by the intimate fusion of the different elements of the blood. The existence of the inflammatory buffy coat with such a dissolved state of the blood seems to us very remarkable.

This is all that we remarked worthy of notice in the blood drawn from the veins of persons labouring under continued fever, whether slight or severe. When observed during life, this blood did not then present any more constant alteration than the blood of those same diseases observed after death. The only three cases in which we observed the blood really altered, did not present in the symptoms anything but what occurred in the other cases, but, further, we found similar alterations in the blood of individuals labouring under diseases totally distinct from what are called essential fevers.

Since the cases detailed in this volume were collected, we have had frequent opportunities of submitting to an attentive examination the blood taken from the veins of persons labouring under all the varieties of essential fever. All that we ascertained is the rare occurrence of the buffy coat, and the great softness of the crassamentum. With respect to this buffy coat itself, the causes which, out of ten cases of continued fevers, produce it once, and occasion its absence nine times, do not appear to us capable of being discovered, except when there comes on a complication of pneumonia, pleuritis, or rheumatism.

Neither has M. Louis found any thing particular in the blood drawn from the veins of persons affected with typhoid fever; as was the case with us, he found the buffy coat in only a small number of cases of bloodletting, thirteen times out of forty.

After these facts, which are sufficiently numerous to warrant us in attaching some value to them, it is with some reserve that we shall admit of other facts, observed at different periods, from which it would appear that nothing is more common than to find the blood changed in persons bled during the progress of a bad fever. We shall repeat here what we have already laid down as a consequence of those researches into the blood examined after death; it is this, that if in these diseases there exist an alteration of the blood, it is most frequently not to be appreciated by our senses.

APPARATUS OF THE LYMPHATIC CIRCULATION.

Of the different parts which compose this apparatus, one only seemed to us to be a very frequent seat of lesion — we mean the mesenteric ganglions. Every time we found the intestine exanthematous or ulcerated, these ganglions were observed to be seriously changed. They were much larger than natural; their tissue was red or brownish; it was torn under the finger with the greatest ease; and sometimes small purulent deposits were scattered through one or more ganglions.

The mesenteric ganglions, which appeared to us most constantly and most seriously altered, were those which corresponded to the portions of intestine most diseased, namely, at the termination of the small intestine, or at the cæcum. There was always a direct ratio between the intensity of the intestinal lesion and that of the lesion of the glands.

In some individuals, who died when the intestinal lesion was now proceeding towards a cure, or was already cured, there still remained some traces of the affection of the mesenteric ganglions; they were still increased in size; and their violet colour indicated in these bodies a residue of inflammation in its decline.

From these facts, we think we may lay it down that, in fevers, the affection of the mesenteric ganglions is consecutive on the intestinal affection, and that it is a product of the latter. There is a resemblance between the engorgement which the glands of the mesentery then undergo, and that which the lymphatic ganglions of the axilla or groin undergo, when a virus, any irritating matter whatever, comes to be deposited in the tissue of the parts whose lymphatic vessels terminate in these glands. It has been said that, like the ganglions of the axilla or groin, the glands of the mesentery became diseased only in consequence of the absorption of the irritating matter produced on the surface of the ulcerated mucous membrane. It has been added, that the mixture of this matter with the lymph and blood might be considered as the cause of several of the symptoms which characterize bad fevers. All this is possible; but observe that, in order that the axillary or inguinal glands may be engorged, it is not necessary that the absorption of the irritating matter should have taken place; it is sufficient that any point whatever of the skin or cellular tissue, from which the lymphatics going to these glands arise, should be pricked or irritated in any way. The case may be the same for the mesenteric glands. But why does inflammation of these invariably follow intestinal irritation? Why does inflammation of the glands of the axilla or groin much less frequently follow irritation applied to the point of origin of the lymphatics, which terminate in these ganglions?

RESPIRATORY APPARATUS.

SECTION I.

LESIONS OF THIS APPARATUS OBSERVED AFTER DEATH.

The bronchi presented nothing remarkable. We have found nothing else in them but more or less redness, similar to that seen in a great number of

other cases. In several they contained a considerable quantity of mucus, sometimes colourless, sometimes reddish.

If the bronchi presented nothing worth remarking, the same cannot be said of the parenchyma of the lung. We found this structure healthy in only the smaller number of our cases. In these latter it presented at most that slight engorgement which is met in almost all dead bodies. But in many cases this engorgement was much greater. On cutting into the lung, or on pressing it between the fingers, there was observed to ooze from it a very great quantity of a liquid more or less frothy, sometimes colourless, but most frequently reddish. This engorgement was so great, that it could not be considered as a mere cadaveric effect. It was probably the first degree of pulmonary inflammation.

In others, instead of this engorgement, whether serous or sero-sanguinolent, there was more or less extensive hepatisation of the pulmonary parenchyma. This hepatisation was red in the greater number of cases, and in some cases it was grey, or mixed with commencing purulent infiltration. (Cases 1, 5, 15, 17, 22, 24, 26, 27.)

On one occasion we observed gangrene of the lung; it was in one of the individuals whose lung was hepatised; but the hepatisation existed in the lower lobe, and the gangrene in the centre of the upper. This gangrene we considered merely as an accidental complication of the disease.

On two occasions small purulent abscesses were scattered through the pulmonary parenchyma; but these were cases of a peculiar nature, and those abscesses appeared to be formed consecutively to the presence of pus in the torrent of the circulation. In one of these cases there had been phlebitis, and in the other the principal disease was confluent small-pox. In three cases the lung contained tubercles.

In another case cancerous masses were scattered through the lung, and lymphatic vessels, full of matter resembling softened cancer, traversed the circumference of the lung, and entered into its substance.

Of these different lesions none belongs peculiarly to the genus of diseases now under consideration. The following, on the contrary, though having been observed in several other diseases, appeared to us to present itself more particularly in bad fevers. In this lesion the pulmonary parenchyma, having become impervious to the air, as in the case of hepatisation, presents a brown or livid red tissue, which is under the finger like a sort of pulp. In this state the lung very much resembles certain spleens remarkable for their great softness. We shall be able to form an idea of this lesion of the lung, and to see in what states of disease it supervened, by referring more particularly to cases 6, 14, 16, 21.

Only twice we found in the pleura albuminous membraniform concretions, traces of a recent pleurisy.

In some individuals the cavity of the pleuræ was filled with a red liquid resembling blood just taken from a vein. In one of these cases there was at least a pint in each pleura; in another case the pericardium also contained some.

M. Louis has also several times met similar effusions in persons who died of the disease called by him typhoid. Neither in the cases which he reports, nor in ours, did the pleura present any thing else of a morbid nature except the effusion itself.

These sanguineous effusions seem to us so much the more deserving of being noticed, as they have been often found in the bodies of animals in whom the symptoms of adynamic fever had been produced by injecting putrid matter into their veins.

From this recapitulation, one may form an opinion how great the number of patients was who died having the respiratory passages affected. This affection

almost always coincided with that of other parts, and particularly of the digestive tube. Sometimes, however, in persons who died with the symptoms of what is called adynamic fever, we found no other lesion but pneumonia; and in this case it seemed to us that the commencement and origin of the disease should be placed in the pulmonary lesion. We have dwelt so long on this point in the observations we made on our particular cases, that we shall not return to it here. Sometimes, again, the pulmonary affection developed itself during convalescence, and occasioned death.

SECTION II.

LESIONS OF THE RESPIRATORY APPARATUS OBSERVED DURING LIFE.

The functional disturbances of this apparatus, in continued fevers, do not correspond in their apparent severity with the intensity and frequency of the disturbances which anatomy discovers after death. In this, more than in any other disease, the most serious alterations of the pulmonary parenchyma commence, and become developed in a manner entirely latent; and oftentimes the disorganisation of the lung is completed before even we could have suspected it to be the seat of any lesion whatever. This is so much the more remarkable, as it is here in an acute form that the pulmonary affection is developed. We shall now pass in review the different cases which have fallen under our observation.

At the onset of the disease, it is often observed that, at the same time that the symptoms of intestinal irritation become developed, other symptoms also appear which denote the existence of an active hyperemia of the mucous membrane of the air passages. By its symptoms the seat of the disease seems to be in the gastro-pulmonary mucous membrane; oftentimes even the signs of irritation of the bronchial mucous membrane are the least equivocal. The patients cough; they expectorate a transparent mucus, in which some striæ of blood are occasionally observed; they complain of a painful sensation within the chest; some say that they feel a burning or tearing all along the sternum; others complain of pains which proceed from different points of the thoracic parietes, or are confined to one point of these parietes; some have even more or less pain in respiring, and they evidently labour under some oppression.

If, with such a group of symptoms, the chest be percussed, the sonorousness of its parietes is most frequently found to have undergone no change. If auscultation be employed, sometimes nothing unusual is discovered, the respiratory murmur is everywhere pure as in the normal state; it is sometimes louder; and as we have stated elsewhere, there is then reason to apprehend that some of the pulmonary lobules have become impervious to air. Sometimes different râles are heard, which indicate either the existence of a certain quantity of mucus in the bronchi, or a slight engorgement of the mucous membrane of the tubes.

These different symptoms often exist only during the first days of the disease; they are observed to disappear either spontaneously, or after a bloodletting; and sometimes after a vomit; and the disease then seems to become more and more concentrated in the digestive tube. At other times these symptoms continue, without becoming worse, during the entire course of the disease. At other times they become worse: the irritation of the pulmonary mucous membrane extends to the parenchyma of the organ, and all the signs of pneumonia appear.

But it is not in this way that the pneumonia which complicates continued fever most usually sets in. Frequently it supervenes at a period much more remote from their outset, and in persons who, till then, had not presented any

trace of pulmonary lesion, either in the rational signs, or by means of auscultation.

Two cases may then present themselves; in one the pneumonia is announced by its characteristic symptoms; in the other it remains latent, and auscultation or percussion alone can detect its existence. When the former occurs, the patients, after having had some shivering, or without that symptom, are seized with cough, stitches in the side, rust-coloured sputa, &c.; they present in each of these symptoms numerous varieties already noticed in another part of this work, under the head of *diseases of the chest.*

The second case may present itself at a period when the patients are far from having fallen into the adynamic state; but most usually the pneumonia remains completely latent only when it attacks an individual already sunk in the adynamic state, or in whom there exist different nervous symptoms, more or less alarming. It is principally in such cases that instead of simple engorgement, or the ordinary red or grey hepatisation, we find the brown or livid softening, of which we have spoken above.

How frequently have we not in such cases found a considerable portion of the pulmonary parenchyma become impervious to air in persons who, during life, had not manifested any appreciable difficulty in their breathing, who had had no cough, and in whom the sputa were either altogether absent, or merely mucous! It is then of the utmost importance frequently to percuss and auscultate individuals labouring under bad fevers, however exempt they may appear to be from any affection of the respiratory apparatus.

Without being indicated by any of its ordinary local symptoms, the pneumonia of bad fevers may produce general symptoms of a very remarkable kind. Thus at the same time that auscultation apprises us of its invasion, we observe considerable increase in the prostration of the patient; suddenly the pulse becomes much more frequent, and often extremely feeble, though at other times it acquires some hardness; the features become altered, and the cheek bones (*pommettes*) present a redness which forms a striking contrast with the livid paleness of the rest of the face.

The pneumonia, which comes on during convalescence, is most usually indicated by symptoms which do not allow us to mistake it; we shall not, therefore, dwell on it here. But we shall call attention for a moment to another case, which we have sometimes met. Several convalescents complain of a cough which, at first, seems devoid of any importance; still this cough persists; the fever which had entirely disappeared, reappears under another form; every evening there is an acceleration of the pulse, and some heat of skin, and in a little time this febrile accession is terminated every morning by sweats. The strength which had at first appeared to return, diminishes more and more; and at the end of some time, there can no longer be any doubt of the existence of pulmonary phthisis. On going back to the previous history of such cases, we find that in some there had been, before their last illness, divers symptoms which might cause one to apprehend the development of tubercles in them. But in others nothing of this kind had existed, and it is for the first time during their convalescence that they present some symptoms of tuberculisation of the lung.

In all that has been now said, we have spoken of the affection of the respiratory apparatus only as a complication of fever; but there are other cases wherein this affection appears to be the origin of it. This is what is observed principally in old persons; when a pneumonia attacks them, it is scarcely indicated by its ordinary symptoms, when at times the tongue becomes dry and black the intellect is disturbed; we observe, in a word, all the phenomena which characterise what is called adynamic fever; then the sputa may be suppressed, the oppression may be slight, and the cough inconsiderable. Without percussion and auscultation, the pulmonary affection is still overlooked, or lost sight

of; and it is only by *post-mortem* examination that all its severity can be appreciated. In no place else is there any lesion detected; and it then seems quite natural to refer the adynamic symptoms presented by the individual to the disease of the lung.

Whilst in a considerable number of individuals, labouring under bad fevers, no local symptom discloses the existence of the most intense pulmonary lesions, there are other persons in whom there is observed a very marked disturbance of the respiration, without any disease of the lung being found after death. Whilst this organ remains perfectly healthy to the eye of the anatomist, the breathing is observed to be hurried, slow, difficult or extremely irregular; thus some patients are observed, in whom, within a short space of time, the respiratory movements present alternately extreme frequency, and then considerable infrequency. These different modifications of the respiration are obviously the result of the disturbance of the innervation. Why should not disturbance of the nervous centres occasion an irregular contraction of the inspiratory or expiratory muscles, just as it occasions the most unusual movements in the muscles of relative life?

APPARATUS OF THE SECRETIONS.

SECTION I.

LESIONS OF THE CELLULAR TISSUE.

This tissue is but seldom found altered. The few lesions which we have met in it are the following: —

1st. Effusions of blood. Thus, in two cases, a perceptible quantity of blood infiltrated the cellular tissue placed between the fibres of the recti muscles of the abdomen.

2dly. Collections of pus. Sometimes they were formed during the course of the disease, and seemed to have but little influence on its termination; sometimes the period of their appearance coincided with that of a general improvement of the symptoms. Another time numerous abscesses which presented themselves also coincided at first with the establishment of convalescence. But one of these abscesses did not close, and there came from it a profuse suppuration which occasioned death.

In one of our cases of small-pox, complicated with typhoid symptoms, there were abscesses in the cellular tissue of the neck; they seemed to be metastatic, similar to those which were scattered through the lung in the same individual.

In two of our cases the inflammation of the cellular tissue, which terminated in simple suppuration in one case, and in gangrene in the other, appeared at the commencement of the disease, and may be considered as its very origin; at least, on opening the bodies, nothing was found but this phlegmon, to explain the adynamic fever.

3dly. Serous infiltrations. These have been observed in some convalescents; they were confined to the parts around the ankles, and disappeared spontaneously after some days.

In a woman, whose case is not contained in this work, we observed during convalescence from a bad fever, considerable serous infiltration in all the left lower extremity. This infiltration, which set in rapidly, followed the appear-

ance of extremely acute pains seated on the left iliac region. These pains we combated by the application of leeches; they lasted for eight days, and then disappeared. The œdema of the limb disappeared soon after. In this case we could only form conjectures regarding the cause of these pains, and the œdema which followed them.

SECTION II.

LESIONS OF THE SEROUS MEMBRANES.

We have already spoken of red effusions formed of blood, found occasionally in the pleura, in the pericardium, and in the peritoneum. They exist without the tissue, whence the blood comes, presenting any appreciable alteration, and it would be only by an hypothesis that one could refer to an inflammatory process those sanguineous effusions, which oftentimes appear to be much less connected with any lesion of that part of the system where they occur, than with certain conditions of the blood. Accordingly, these effusions are produced in animals, who receive into their veins certain putrid substances; or the latter produced such an alteration in the blood as to prevent its coagulation after death; such effusions are found to occur in scorbutic individuals.

Inflammation, properly so called, of serous membranes, is a very rare phenomenon in fevers. Thus, in these affections, the pleura is found much less frequently changed than the lung; and the peritoneum, though in almost immediate contact with the mucous membrane, which is nearly always very seriously changed, generally remains intact, except in the cases wherein one of the ulcers of the intestine happens to perforate it. The result of this is one or other of those varieties of peritonitis already noticed.

SECTION III.

LESIONS OF THE BILIARY APPARATUS.

In our experience, the liver was almost invariably found to be healthy. In a few cases its tissue was found to be extremely dense; but that was a lesion purely accidental, which in all probability had no connexion with the disease of which the patients died. On one occasion the liver was found to be extremely pale. In no case did we observe it to present lesions connected with those of the digestive tube.

In these different cases the principal alteration resided in the digestive tube; but we met another case wherein the typhoid symptoms did not coincide with any other alteration except red softening of the liver. In the morbid state of this organ the original cause of the symptoms appeared to lie here.

Neither have we seen that, in M. Bouillaud's observations on fever, the liver presented any thing remarkable, except in one case, wherein this organ contained several abscesses. It was in an individual who, after having presented for several days a jaundice tint with pains towards the right hypochondrium, diarrhœa, red tongue, great anxiety, alternations of heat and cold, meteorism, hiccup, delirium towards the termination, etc., was suddenly seized with hematemesis, after which he died.

In the part of our *Clinique* dedicated to the consideration of diseases of the liver, we shall find a case of abscess of this organ, announced by no other symptoms than a febrile disturbance, without any organ appearing to be the seat of any especial lesion.

In the facts recorded by M. Louis, we find no abscess of the liver, neither do we find any instance of lesion of this organ, to which the name of hepatitis can be given. But M. Louis states that he met in several individuals affected with typhoid fever, a very particular state of the liver, in which this organ, at the same time that it contained very little blood, and that a section of it was observed to be dry, had become so friable, that the slightest pressure with the finger was sufficient to reduce it to a pulp. M. Louis assigns no symptom to this state, of the nature of which he acknowledges himself ignorant; he states that he met it in other persons besides those labouring under typhoid fever, less frequently, however, than in the latter.

We observed nothing similar in the cases contained in this part of the work; but it is possible that at the time they were taken this lesion may have escaped us. Since we became acquainted with the researches of M. Louis, we have endeavoured to ascertain the existence of softening of the liver in typhoid fever, and we have not observed that this softening was more frequent in this disease than in others. In other cases we found a softening similar to that mentioned by M. Louis; it was observed in its highest degree in two women who died of puerperal peritonitis, with purulent depositions in the body of the uterus, but without any trace of pus in the veins.

We have never met any morbid change in the gall bladder. With respect to the bile we have often seen it changed in its quantity, and sometimes in its qualities.

Thus, in a considerable number of dead bodies, we have found the duodenum and upper portion of the jejunum and ileum filled with a great quantity of bile; we very seldom discovered any in the stomach. Beneath it the mucous membrane presented to us three different aspects: it sometimes had a yellow tint, which the bile had given to it since death; it was sometimes of a more or less intense red, whilst on some occasions it was perfectly white.

Nothing was more variable than the state of the bile contained in the gall bladder; and of the different appearances which it presented to us, none was observed to us more frequent in continued fevers than in any other disease. Thus it oftentimes had a deep black tint, a very great viscidity, and a syrupy consistence. At other times, on the contrary, the gall bladder contained a clear and almost colourless liquid resembling serum.

On one occasion we found in the gall bladder and in the excretory ducts a liquid not at all resembling bile: it was a sort of sanious matter, somewhat like the ichorous discharge of certain ulcers.

We only once met a calculus in the gall bladder.

If we now enquire what functional disturbance the liver and its appendages presented to us during life, we shall find them to be very few. We never detected any pain in the right hypochondrium which we could consider as appertaining to the liver. The bilious vomiting and purging appeared to us to be connected rather with a morbid state of the digestive passages than with any lesion of the liver. We have opened the bodies of persons who died at that state of the disease when the different symptoms of what is called bilious fever existed: the liver presented nothing remarkable, neither was there any considerable quantity of bile in the primæ viæ.

In the individual in whose liver M. Bouillaud found abscesses, the skin had presented an icteric tint; but it should not be inferred from this that we shall find the liver appreciably changed in all individuals who, during the progress of a bad fever, may happen to present a yellow colour of the skin. Thus, one of the circumstances which may present it, without our finding any lesion of the liver after death, is the presence of pus in the venous system; and in this case it seems evident that this yellow tint is owing not to bile, but to a particular alter-

ation which the blood has undergone in the capillaries, in consequence of its admixture with pus.

But jaundice may present itself as one of the phenomena of bad fevers without the presence of pus in the blood, and always without any appreciable alteration of the liver. An individual died in the Charité, September 1828, with all the symptoms of what is called adynamic fever. During the two last days of his life, the entire skin assumed a well-marked icteric colour. On opening the body no particular lesion accounted for this jaundice; there was nothing remarkable in the liver, nor in its excretory ducts; in the intestine the ordinary exantheme was found in the stage of ulceration.

The appearance of jaundice in bad fevers coincides sometimes with profuse hemorrhages, either from the nasal fossæ, or the mucous membrane of the stomach or intestines; and in this case again observation has shown that it is not to an alteration of the liver, appreciable at least by anatomy, that the jaundice can be attributed. Thus, for instance, neither the liver nor bile ducts presented any thing particular in an individual whose case has been reported by Desmoulins.* This person, who fell sick at Havre on coming from Martinique, presented the following symptoms:

On the first and second day, he had intense headach, delirium,a nd extreme restlessness, so that it became necessary to employ the straight-waistcoat; blindness at intervals; hiccup; hemorrhage from the nasal fossæ, mouth and anus; ecchymosis on different points of the skin; his perspiration dyed his linen yellow.

On the third day there was general jaundice; black vomiting; total blindness; coma, with convulsions of the extremities and face; carphology. He died on the fifth day.

The same black pitchy matter was found in the digestive tube, as had been passed during life both by vomiting and stool. The gastro-intestinal mucous membrane was of a brown red colour. *There was nothing remarkable either in the liver or its appendages.* The skin contained a considerable quantity of blood, and poured it out in jets, when an incision was made into it.

Another remarkable circumstance in this case, and one probably connected both with the hemorrhages from the mucous membrane and with the jaundice, is, that the body, which was opened whilst still warm, five or six hours after death, already presented well-marked emphysema of the sub-cutaneous cellular tissue.

Might not one be inclined to admit that in these different cases the yellow colouring of the skin is principally owing to the blood, which, at the same time that it escapes from the surface of the mucous membrane, also leaves its vessels on the surface of the skin, either in some detached points, which gives rise to partial ecchymosis, or over the entire surface, which occasions general ecchymosis, and imparts to the entire cutaneous envelope a yellow tinge?

SECTION IV.

LESIONS OF THE URINARY PASSAGES.

The urinary passages are more rarely found the seat of lesion than any other organ of the body. In two or three cases the mucous membrane of the bladder appeared to us to be very much injected. We have found it white in more than one case, where, during life, there had been retention of urine and long continued distension of this viscus.

* Journal Complementaire des Sciences Médicales, tom. 12.

In two cases only were the urinary passages the seat of very serious lesion, which appeared to us to have acted an important part in the production of the symptoms.

In one of these cases one of the kidneys was very red and extremely friable; there was pus in the ureters, and the vesical mucous membrane was intensely red; all the other organs were found healthy, and it appeared to us that the well-marked adynamic fever which had taken place, might be considered as having had its origin and cause in the affection of the urinary apparatus.

In the other case the prostate was the seat of an immense abscess; and here again this lesion was the only one of any importance detected on opening the body. The urine contained in the bladder, when examined after death, presented nothing particular. The urine passed by the patients during life was not examined by us with sufficient care to enable us either to deny or confirm what has been stated by authors concerning the qualities of the urine in the different stages of fever.

SECTION V.

LESIONS OF THE SALIVARY GLANDS AND OF THE PANCREAS.

The maxillary and sublingual glands presented nothing particular in any of our cases. Such, however, was not the case with the parotid glands, and particularly with the cellular tissue surrounding these glands.

Five times only have we observed any considerable tumefaction in the parotid region. In these five cases this tumefaction occurred in individuals who had had the symptoms of ataxo-adynamic fever in an extreme degree. In none of these cases could we consider the parotid engorgement as critical; it appeared to us to be merely an accidental, though dangerous complication of the disease, or one which retarded convalescence when the parotid became enlarged only at this latter period.

Thus in one of these cases the very day on which the enlargement of the parotid appeared, the thirteenth day of the disease, the symptoms became worse: the gland increased in size on the following days, and each day also the symptoms became exasperated.

In one of our cases the parotid gland became enlarged on the nineteenth day, and attained all at once an enormous size. The patient died two days after.

In another case we could not determine with precision the time when the enlargement appeared; the tumefaction was but slight. After having remained stationary for three days, the tumour gradually diminished, and disappeared without having exercised any influence on the disease. This case terminated fatally.

In another case the parotid became prominent towards the twentieth day, when the patient was nearly convalescent. According as the parotid enlarged, the fever was rekindled, and adynamic symptoms reappeared. The tumour declined towards the tenth day, and we observed the bad symptoms again disappear, according as the tumour tended towards resolution.

In another case also, it was a little time before the establishment of convalescence, one of the parotids became swollen. This engorgement was treated like any other inflammation: leeches were applied to the tumour, and it was covered with emollient poultices; it lasted for seven days, and terminated in resolution. Convalescence was not perfectly established till after the disappearance of the parotid enlargement. This tumefaction having come on in an individual who was already exhausted by a very severe disease would, in all probability, have terminated fatally, if, instead of meeting it from the very instant

of its appearance by the active treatment usual in every inflammation, it had been allowed to suppurate, for fear of disturbing what has been called a critical movement of nature.

When a parotid tumour terminates in suppuration, it is necessary to give exit at an early period by a proper incision to the pus which has formed between the granulations of the gland; for this pus, by spreading to the neighbouring parts, may give rise to serious consequences. On two occasions we saw the cartilaginous portion of the meatus auditorius destroyed, by the pus being allowed to remain, and the abscess of the parotid discharge itself through the ear.

The pancreas, which so closely resembles the salivary glands in its texture, is not more frequently affected in fevers than in other diseases. Once, however, we found it more injected than usual. This injection was principally seated in the cellular tissue interposed between the lobules of the gland. This slight lesion coincided with tumefaction of one of the parotid glands.

ORGANS OF THE LIFE OF RELATION.

SECTION I.

LESIONS OF THOSE ORGANS OBSERVED AFTER DEATH.

A.—Nervous Centres.

There are few organs, in persons affected with continued fevers, which present more functional disturbances than the nervous centres; there are few, however, which, after death, present fewer lesions appreciable by dissection; and if there be any truth clearly established to our satisfaction, it is this: that in what are called essential fevers, there is no nervous symptom which may not present itself without any appreciable alteration in the brain or its appendages.

With the exception of six individuals (cases 9, 15, 23, 26, 27, 37), all those whose bodies we opened had had delirium, or other well-marked disturbances of the nervous functions, at the time they died, and in almost all these disturbances of the innervation existed for a considerable time. The following is the state in which the nervous centres, or their appendages, were found: —

The sinuses and venous trunks which surround the encephalic mass were found gorged with blood in only a very small number of cases. In the individuals who form the subject of these cases the symptoms of what is called ataxic fever had predominated.

In some cases the membranes presented different degrees of injection. This injection coincided on two occasions with death, which was preceded by great embarrassment in respiration, and in these two cases it might be considered as entirely mechanical. Most frequently it existed in only a slight degree. In one case it was very considerable, but appeared only in some points. In all it had its seat almost exclusively in the sub-arachnoid cellular tissue of the convexity of the cerebral hemispheres. In one of the individuals whose membranes were injected, the arachnoid of the convexity of the hemispheres was unusually friable. In some the subarachnoid cellular tissue was infiltrated with a quantity of limpid serum, but this quantity was never considerable.

In some others we also found a little serum, either within the ventricles (never

more than three or four small spoonsful in each, and most frequently scarcely one), or at the base of the cranium.

In no case was the serum which we found in the sub-arachnoid cellular tissue, in the ventricles, or at the base of the cranium, in sufficient quantity perceptibly to raise the arachnoid, separate the convolutions, or occupy any considerable portion of the occipital fossæ. Thus, these effusions being but inconsiderable, though still deserving of notice, do not appear to us of such importance as to warrant us in taking them into consideration for the purpose of explaining the symptoms.

The consistence of the brain appeared to us perceptibly diminished in only one case. On raising the arachnoid, which was red and friable, we brought with it portions of the substance of the convolutions. The softening was confined, moreover, to the most superficial layer of the latter.

There was also general softening of the brain in the individual whose case has been reported by M. Gauthier, and of which we have spoken in the remarks which follow our forty-seventh case. But in that case this softening coincided with diminished consistence in several of the other tissues.

We have found perceptible increase in the consistence of the brain in only one case. This unusual firmness coincided with considerable injection of the membranes. Stupor had been the prevailing phenomenon during life.

Whenever the nature of the symptoms induced us to examine the spinal cord, we detected nothing remarkable in it.

Such are the rare, and for the most part very slight alterations, which, being found in the brain, might be considered as of recent formation.

In some other cases we met more serious alterations in the brain or around it, but such as had no connexion with the disease of which the patient died; thus in one individual there was an old apoplectic clot (*foyer*); in another a bony granulation was implanted in a part of the cerebral substance. In a third a false membrane of a fibrous appearance was placed between the arachnoid and dura mater on the one hand; between the arachnoid and pia mater on the other.

We have also made mention of some individuals in whom small purulent depositions were scattered through the encephalic mass, and who had died with typhoid symptoms. But in them there were at the same time abscesses in twenty other parts of the system, they were connected either with phlebitis, or purulent absorption; this was the cause of all the symptoms, and the brain, in such cases, presented no particular functional disturbance.

Did the individuals who presented the different states of the brain now passed in review, present any thing particular in the symptoms? by no means. Nervous symptoms of the same nature, of the same intensity, and of the same duration were observed, both in those whose brain or its appendages seemed to present something no longer normal, as also in those the integrity of whose nervous centres had undergone no species of appreciable alteration.

But, further, it is far from being true that it is in bad fevers only that we meet engorgement of the sinuses, injection of the membranes, effusion of serum in different parts of the cavity of the arachnoid, or outside this cavity, red points in the cerebral substance, numerous shades in its consistence, etc. All these states we have also met in many other cases where, during life, no nervous disturbance had been observed; so that in the cases, where one of these states coincided with some disturbance of the innervation, we may reasonably doubt whether this state has been the cause of the functional disturbance.

The nervous centres of organic life were examined by us in a considerable number of cases; twice only did they present any appearance of alteration: it was in the case of two individuals who died with a group of well-marked adynamic symptoms; the semilunar ganglions were remarkably red. One of

these individuals had experienced during the last forty-eight hours of his existence violent trismus and tetanic rigidity of the upper extremities. We would not venture to assert that in these cases the redness of the semilunar ganglions was a morbid state; for repeated researches have taught us that these ganglions are very variable in colour, a circumstance depending on the kind of death and the quantity of blood contained in the different capillaries.

Thus it may be laid down that, in fevers called essential, the state of the nervous centres after death cannot account for the disturbances which they presented during life.*

Are the functional disturbances of the nervous centres, in these fevers, the uniform sympathetic result of a morbid state of the stomach? This cannot be admitted; for in the majority of cases we have found no constant connexion between the state of the stomach and the lesion of the nervous functions; we have already stated, that this organ was found perfectly healthy after death in many persons, who up to the last moments of life had had nervous symptoms of the most serious and varied description. No doubt, however, but these symptoms may be the sympathetic effect of a gastric irritation; but all we wish to lay down here, which also results from the researches of M. Louis, is, that this irritation is not necessarily the original cause of the nervous disturbances which come on in bad fevers, and even that in most cases these disturbances cannot be explained by the state in which the stomach is found after death.

May we refer the nervous disturbances in bad fevers to the state of the small intestine, and particularly to dothinenterite? Certainly we may in a great number of cases, but not in all. In several of these cases, where, in order to account for the very severe symptoms, nothing is found but some follicular patches swollen, or slightly ulcerated, there is some ground for hesitating to refer such great disturbance to such slight lesions; there is reason for thinking that behind these visible lesions, and before their appearance, there existed in the previous state of the patient some serious derangement, without which such alarming symptoms would not have been produced. No, the intestinal affection is not the entire cause in all such cases, and in order to account for every thing which coincides with it, or appears after it, it becomes necessary to introduce other elements, which pathological anatomy has not yet discovered by means of the scalpel. Here then, as in numberless other cases, that which we perceive is but a part of that which exists.

And, moreover, has not our experience pointed out to us other cases where, in the absence of all trace of dothinenterite, these same nervous symptoms were observed? Has it not shown us cases where these same symptoms were still found in the absence of all species of intestinal lesion appreciable by anatomy, but with lesions of other organs? We cannot forget those uncommon, but yet real cases, in which, in the absence of any organic lesion appreciable after death, the same nervous symptoms were still present. Refer, for instance, to the individual who forms the subject of our twenty-fifth case: — When convalescent from a dothinenterite, a moral excitement acted on him; he all at once presented symptoms which indicated considerable disturbance of innervation. He died in a few days; and anatomy discovered, neither in the nervous centres nor elsewhere, any lesion to account for the alarming phenomena which hurried him to the grave.

* This opinion is further confirmed by the recent observations of M. Louis. In his *Traité de la Fièvre Typhoïde* (tom. ii. page 154), this gentleman says: "The apparent state of the brain could not explain the symptoms of which it had been the source, just as the state of the mucous membrane of the stomach does not account for the loss of appetite and other gastric symptoms in a great number of cases."

B.—The Muscles.

It has been frequently stated, that the muscles of individuals labouring under adynamic fever presented to the touch a pitchy (*poisseux*) feel, which characterised diseases of this kind. We feel warranted in asserting that, in a considerable number of cases, we did not discover this state of the muscles; and that, on the other hand, we have observed it on the bodies of persons who died of different acute diseases.

If the great development of the muscles uniformly indicated the amount of vital energy possessed by each individual, we could not believe in the existence of a real adynamic state in several individuals who died with all the symptoms of the greatest prostration. In such cases we found the muscles remarkable for their size, their firmness, and their great redness. How are we to explain the singular softening which the entire muscular system presented in the individual alluded to in the observations following our forty-seventh case?

SECTION II.

LESIONS OF THE ORGANS OF THE LIFE OF RELATION OBSERVED DURING THE DISEASE.

A.—Lesions of the Functions of the Nervous Centres.

These centres, observed at the different stages of the disease, present to us disturbances in their functions as frequent as the lesions which they present after death are uncommon. We shall recapitulate whatever these functional disturbances have presented most remarkable at the onset of the disease, or during its progress.

At its onset the disease may assume one of the following forms: —

First Form. — Apyretic disturbance of the digestive functions (anorexia or diarrhœa), without the appearance of any functional disturbance of the nervous centres.

Second Form. — Apyretic disturbance of the digestive functions, with slight nervous symptoms, such as headach, tinnitus aurium, swooning, pains in the region of the kidneys, spontaneous lassitude, pains in the limbs, and principally towards the articulations, a feeling of debility.

Third Form — Febrile disturbance of the digestive functions, with the same nervous symptoms.

Fourth Form. — Absence of any disturbance of the digestive functions, or at most a diminution of appetite. The same nervous symptoms, without fever.

One or other of these symptoms may predominate more particularly.

Thus, in a great number of individuals, there is observed at first a pain of head, which is often very acute, and which lasts for several days without being accompanied by any other symptom.

In others the commencement is particularly marked by lipothymia and dazzling (*eblouissemens*).

Some individuals experience, before any other symptom, pain in the joints, which sometimes may be mistaken for a rheumatic affection.

Some patients feel, in the first instance, a degree of debility which astonishes them, without having any fever, and without their appetite being much diminished. They are fatigued, they say, after walking only a few steps; every sort of exertion is painful to them; they become altogether listless, and are content only when in the most absolute state of rest.

Fifth Form. — The same nervous symptoms, with fever, and without any apparent disturbance of the digestive passages.

Sixth Form.—Severe nervous symptoms from the very onset, such as delirium, stupor, coma.*

This form of commencement is the most uncommon of all.

If we now trace the nervous symptoms in the course of the disease, we shall find them sometimes very slight, but always present; sometimes more severe, and then constituting bad fevers. For every fever becomes such only in consequence of the part which the nervous system takes in it; and by no means, and this cannot be too often repeated, in consequence of the existence of such or such an organic lesion, nor of an affection of the intestinal follicles, more than of any other organ.†

We have carefully studied, in our several cases, the infinitely varying forms of the disturbance of the intellect. Sometimes this disturbance is suddenly carried to an extreme degree; sometimes it is established only gradually; the patients still understand every thing that is said to them, and answer questions with accuracy; but they have a look of astonishment; they from time to time pronounce some words without meaning, or they can scarcely recollect what happened to them a few minutes before; others make short and abrupt answers, and sometimes answer slowly and vaguely; they seem to endeavour to ascertain what is asked of them, and to require a great effort of mind to answer the most simple question. After a little time no answers are returned, unless the question be repeated several times; and ultimately no answer whatever can be

* One of the most remarkable cases of this description which we have met is the following: — A medical student, who had been four years residing in Paris, complained, for the last eight days, of slight irritation of the digestive passages, for which he did not even take to his bed, when, on the evening of the 24th of November, 1833, he was suddenly seized with violent delirium. The next morning, the 25th, he was bled to the extent of sixteen ounces, without any improvement. On this day, at two o'clock in the afternoon, we found him in the following state: face red, eyes sparkling, great agitation, complete delirium, loud cries. The patient springs out of his bed, in which several friends of his were not able to keep him. It became necessary to tie him; at the same time his pulse was very frequent and full, skin hot, tongue red and gluey. The patient was immediately removed to the Pitié, where, by my directions, forty leeches were applied to the mastoid processes. They abstracted a considerable quantity of blood. At night the patient fell into a state of great debility, and all his body was covered with a cold perspiration. However, towards midnight his strength rallied; he again became very restless, and rose up several times, and wished to leave his bed. On the morning of the 25th of December, he was more calm, but the delirium still continued; cheeks flushed, whilst the rest of the face was of a yellowish tint; tongue dry and red; abdomen slightly tympanitic; pulse 112. I directed a bladder full of ice to be applied to the head, and the lower extremities to be covered with sinapisms. Whilst the ice was kept to the head the patient continued very calm; he then fell into a sort of stupor for about two hours, and, when come out of it, he had his reason perfectly restored. On the following morning, the 27th, his intellects were clear, and the pulse was not more than 76. At night a little delirium again returned, with some fever; the ice was again applied to the head. The patient asked for it himself, because he felt that it calmed him. On the following days all trace of delirium disappeared; but the febrile disturbance continued, and the different signs which characterise dothinenterite were observed. They ceased gradually; and the patient left the hospital perfectly recovered on the 10th of January, 1834.

† There is one remark to be made here; namely, that even slight irritations of the digestive tube react more readily on the innervation than the irritation of any other organ. See, for instance, what happens to a person who has excited his stomach by either too much food, or by food of too stimulating a nature; general illness, extraordinary depression, a feeling of debility and fatigue, of pain of head, or, at least, a sense of weight in the head, total unfitness for intellectual exertion; such are the effects. Certainly, such phenomena are observed much less frequently under the influence of a bronchitis, or such other organic irritation. It seems to be peculiar to gastro-intestinal irritation to disturb the innervation; whilst in the affections of other organs there is required, on the part of the nervous system, a greater predisposition, in order that it may be involved.

obtained. Yet, though they no longer answer, they oftentimes still comprehend what is said to them ; they give the arm, or put out the tongue, when bid to do so. In this state, they sometimes observe the most profound silence, their intellect appear gone, or else the expression of the countenance seems to indicate that the patient's mind is attentively preoccupied with some particular thought. Sometimes, instead of this silence, they are very talkative ; sometimes, again, they utter loud cries, and are continually vociferating. Some exhibit a calm, indifferent air ; others manifest, by their countenance, the expression of the most intense anxiety, or most profound despair. They become very much discouraged, and consider themselves doomed to inevitable death. In others, on the contrary, the first indication of any disturbance of the intellect is the persuasion which they feel that they are very well, that they are becoming better and better, according as their disease is becoming worse.

This delirium, whatever be its form, is oftentimes continued from its commencement. At other times it is observed to be only transient ; at other times again, it returns periodically every night.

Instead of these various disturbances of the intellect, some patients present, from an early period of the disease, a remarkable tendency to sleep, as the prevailing phenomenon ; as soon as they are left to themselves, they close their eyes, and seem to sleep ; and in a little time they can be no longer roused from this state of somnolence, which is changed more or less rapidly into a real coma. Sometimes this latter symptom is continued ; sometimes it alternates with a state of exaltation, during which the patient presents one of the varieties of delirium already noticed.

In several cases, we observe extraordinary and rapid alternations of coma, delirium, and perfect clearness of intellect.

B.—Lesions of Muscular Action.

Disturbance of muscular action often accompanies disturbance of the intellect ; it may precede it, or appear simultaneously with it. In some of our patients, we have observed, before there was any trace of delirium, or somnolence, the muscles of the face agitated with small convulsive movements, principally seated towards one or other of the commissures of the lips. In others, the predominant phenomenon was a very marked tremor of the extremities. In some, subsultus tendinum was, as it were, the prelude to the other nervous symptoms. The subject of case twenty-five presented, at the period of his relapse, permanent flexion of the fingers, as the first indication of the disturbance of the nervous centres. In one of our cases there were the symptoms of catalepsy ; in case twenty-eight, a well-marked trismus ; in another case, tetanic shocks over the body ; in case twenty-nine, a spasmodic contraction of the muscles of the pharynx, and some of the symptoms of hydrophobia : in case seven, a modification in the contractions of the diaphragm, the consequence of which was a very distressing hiccup, which required to be met by peculiar treatment.

Muscular action, instead of being exalted, appears oftentimes more or less completely abolished. Then the contractions of the muscles are observed to become weaker and weaker, and also extremely uncertain ; the tongue, as it were, trembles, and its movements seem to be withdrawn from the influence of the will. At a more advanced stage, the patients, lying on their back perfectly motionless, their arms fixed along the trunk, the eye extinct, countenance dull, intellect in a manner gone, skin cold, pulse thready, give no other indications of life than by some inspiratory movements, which are repeated at long intervals. This state, which resembles the last struggle, may, however, be followed by a return to health.

In more than one case, the muscular strength seemed completely lost ; and

where it appeared that motion was now become impossible, we have seen patients exert all at once, in the midst of their delirium, a degree of energy which we could not have suspected them capable of; these same patients, who, a few minutes before, fell back as inert masses, when an effort was made to raise them, suddenly sat up, arose, left their bed, and walked about. Others, who, during the day, appeared to be sunk in the last degree of prostration, uttered, however, the most violent cries during the night, and required to be tied, in order to confine them to the bed.

In these different cases the term *debility*, as well as the term *excitement*, should be employed with considerable reserve; for neither of them faithfully represents that which exists; and as the greater number of the organic lesions observed can no more be explained by excess, than by deficiency of the normal excitement, in the same manner we must not have recourse either to strength or debility for the purpose of explaining the great modifications of the innervation, which are the most prominent phenomena of bad fevers, and are, as it were, their symptomatic character. By eternally adhering to this dichotomy, and taking alternately, as the expression of truth, sometimes the former and sometimes the latter of these terms, persons have certainly gone beyond that which was supported by facts, not seeing that the sthenic as well as the asthenic state was equally based on hypothesis, and that it would have been wiser and more profitable for science as well as for humanity, to recognise in these great disturbances of functions a state of modification, or of perversion of the nervous power, which therapeutics should no more attempt to meet by tonics, than by debilitants; their only end should be to produce in the system a series of organic movements, which may have the effect (an effect, by the way, never certain, but still possible) of bringing back the nervous functions to their normal state.

Was there excess of strength, or excess of debility, in those remarkable cases of sudden death, which occurred in several of our patients at a time when no serious symptoms had as yet appeared (cases 6, 8, 11, 23, 31)? Who does not see that the dichotomy of Brown, as also the theory of Broussais, are altogether insufficient to account for the phenomenon? Who does not see that in this, as well as in many other modifications of the innervation, there is something else besides this sthenic and asthenic state, to which it would be more convenient to refer every thing?

C.—Lesions of the Functions of the Organs of the Senses.

A considerable number of our patients evinced great diminution in the faculty of hearing. This sometimes manifested itself only at a very advanced period of the disease; sometimes it preceded the ataxo-adynamic symptoms, and led us to predict their development. This second case is far from being uncommon: under such circumstances, the countenance ordinarily assumes a peculiar expression of stupor. On one occasion the air of stupor disappeared all at once, at the time when the ataxo-adynamic symptoms had attained their maximum of intensity.

The sense of vision has also undergone some modifications. It was altogether lost in some instances; in others, fantastical objects presented themselves to the patients. The pupils were oftentimes observed to be either very much contracted or dilated, either on both sides at once, or only on one side. The globe of the eye was occasionally observed to deviate from its axis, sometimes towards the inner, sometimes to the outer side.

In such of these cases as terminated fatally, we detected no lesion of the nervous centres, which could account for those different modifications of the senses of hearing and vision.

The sense of smell presented nothing particular. But the mucous membrane

in which this sense resides, has often been the seat of a hemorrhage which, by its frequency and connexions with other symptoms, merits some consideration. There is no disease in which attacks of epistaxis has been so frequently observed. Epistaxis occurs at three different stages of bad fevers; first, at their onset; secondly, during their progress; thirdly, towards their termination.

At the onset the epistaxis is often connected with headach and all the signs of cerebral congestion; at other times it comes on without these signs existing.

During the progress of the disease it coincides in some individuals with intense redness of the face, injection of the eyes, dizziness, a full, rebounding pulse, and with that group of symptoms which constitute inflammatory fever. But in other cases such is not the case; it is observed to occur at the time when the signs of the adynamic state are setting in; oftentimes, too, it is the precursor of them, and according as it is repeated, the prostration goes on increasing, as also the paleness of the face, the stupor, disturbance of the intellect, subsultus tendinum, etc. More than once have we seen it, in such circumstances, manifest itself after copious bloodletting, and return again according as the latter operation was repeated. We have also observed it to coincide with other hemorrhages from mucous membranes, or with the development of more or less petechiæ. In several of these cases the occurrence of one or more attacks of epistaxis appeared to us to mark very distinctly the transition of a continued fever, which till then was rather mild (bilious or inflammatory), to a much more alarming form (ataxic or adynamic).

Again, in some instances, epistaxis was accompanied with a visible improvement in the symptoms: it is in such cases that it has been considered critical. In one of our cases, the nasal hemorrhage, whose appearance had coincided with a visible amendment in the disease, afterwards threatened to prove fatal by its great profusion. It ceased on the employment of tonics.

There are some of these cases of epistaxis whose profuseness increases in the direct ratio of the debility of the patients and of their state of anæmia. Thus it is often very difficult to arrest the blood from leech bites in persons of a lymphatic constitution, who are feeble, and exhausted by a lingering disease, or who have been already frequently bled.

Some individuals have but one attack of epistaxis; in others it is renewed, either several days successively, or at different periods; and if in certain cases efforts have been made to encourage it, in other cases we have been obliged to have recourse to mechanical means in order to arrest it with all possible promptitude.

As the sense of touch, the skin has presented to us remarkable anomalies in its sensibility. This sensibility has been observed to be destroyed in some individuals; it was, on the contrary, very much exalted in other instances; the sensibility of the entire skin was such, that the slightest pressure made on any one point of it obliged the patient to scream. Such an exaltation of the sensibility, if confined to the skin of the abdominal parietes, would have induced one to believe in the presence of peritonitis. Thus, every time that an individual, labouring under a bad fever, appears to suffer acutely by pressing on the abdomen, we never fail to press other points of the skin for the purpose of comparison, the better to ascertain the real nature of the abdominal pain. In the subject of one of our cases the cutaneous sensibility presented in a short space of time rapid alternations of diminution and exaltation.

But it was not merely as a sense of touch that the skin has been found altered in some of our cases. First, it presented to us different modifications in its temperature, which we have already noticed.

The exaltation, of which it is the seat, has seldom remained in its normal state. In some it was increased during the entire course of the disease, and in these the affection was generally rather mild. The state of moisture or per-

spiration which results from it may be continued, or alternate with such a state of dryness of the skin, either at irregular intervals, or periodically. This periodical return of the perspiration may, or may not, be preceded by shivering.

In other cases the cutaneous transpiration, far from being increased, has appeared to diminish, or to be suspended altogether, and thence that peculiar dryness of the skin so frequently observed in our cases, and which is always connected with a more or less dangerous state. Does not this dryness of the skin also, which, in no disease, is so marked as in that now under consideration, depend on the suppression of the follicular secretion? Be this as it may, we have never seen a decided amendment take place, until the skin had recovered the softness and polish which it presents in the state of health.

Several individuals, whose skin had remained constantly dry, began to perspire at the same time that their state became improved, and every thing indicated in them a tendency to a favourable termination. In twelve of our patients in particular, we observed so sudden and unexpected an improvement in all the symptoms, at the same time that a perspiration took place, that we were inclined to consider it as critical.

Most frequently we have been unable to determine with accuracy the precise day when the *apparently critical* perspiration occurred. However, we thought that it occurred in one case on the seventh day, in another case on the twelfth, in one or two others on the twenty-first. In one case the sweats occurred at three different periods; on the seventh, the fourteenth, and eighteenth day. The last only coincided with any improvement in the disease.

In several cases these sweats, which were immediately followed by any amendment, seemed to have been occasioned by emetics.

However, it must be observed that the appearance of the perspiration has been far from being invariably followed by an improvement in the disease. Thus, in one case, when it first appeared, the symptoms were observed to become worse, and yet this sweat took place on the fourteenth day. In some the skin became, and that for the first time too, the seat of a profuse sweat, a few hours before death. Often also, during the last twenty-four hours of life, the skin was observed to be covered with a clammy, cold sweat. The appearance of this sort of sweat invariably seemed to us a most unfavourable sign.

Some persons had profuse sweats during convalescence, which ceased spontaneously according as their strength returned.

The perspiration of persons labouring under bad fevers, with considerable prostration and leaden tinge of the face, appeared to us remarkably fetid. But this phenomenon is far from being as frequent as has been stated; and we do not think that any thing can be inferred from it with respect to the nature of the disease. We do not see, for instance, what connexion exists between the fetid odour of the sweat and the putridity of the humours, which some have wished to prove by the existence of this peculiar fetor of the product of the cutaneous transpiration.

In a great number of cases the skin was covered with various eruptions — petechiæ, vibices, *sudamina*, miliary pustules, purple eruption, varioloid pustules. Such were the different exanthemes observed by us.

Petechiæ. — The petechial eruption appeared in a great number.

The petechiæ, considered with respect to their situation, also called, from their appearance, lenticular rose-coloured spots, most frequently appeared on the middle and lower part of the chest, and on the upper part of the abdomen. In some cases they covered, at one and the same time, the entire surface of the chest and abdomen. Twice we saw them extend to the upper extremities, once to the thighs, and once to the neck. We never saw them on the face.

Their number has been very variable. Several patients have presented but seven or eight petechiæ at most, which were scattered over the chest or epigas-

trium. In others, the eruption, which was very confluent, covered the chest, abdomen, neck, arms, and thighs. The severity of the accompanying symptoms was not always proportioned to the number of the petechiæ.

The breadth of these spots seemed to us to vary from that of a very small fleabite to that of a lentil. They were in general round, but sometimes presented an oval or oblong form. On passing the finger slightly over these spots, it was found that they projected a little above the level of the skin. This projection, however, was not perceivable by the sight.

The colour of the petechiæ presented several shades. They had in general a rather bright rose-coloured tinge, when they appeared at a period when the adynamic symptoms were not yet much marked. But in almost all the cases where there was great prostration, and great stupor, the spots were pale, or else a livid or brown colour replaced their rose-coloured tinge. Quarin rightly distinguished three species of petechiæ with respect to their colour; some being red, others livid, and the third blackish. *These last*, he said, *are the most uncommon and the most unfavourable; those that are of a livid colour are also very alarming; nor are those that are red exempt from danger.*

We have not been able to ascertain any thing definite with respect to the period of the disease at which the petechiæ began to appear. We have most frequently seen them appear in the middle of the fever, sometimes towards the end, and even during convalescence; very seldom from the very commencement.

From the moment when each spot appears ordinarily to have attained its greatest development, it continues five or six days, then fades and disappears, without leaving behind it any trace of its existence.

On one occasion, however, in an individual who had had a great number of petechiæ, we observed, after their disappearance, a real desquamation of the cuticle.

In general, the petechial eruption continues discrete; it may, however, become confluent, and then it presents in its appearance some resemblance to the eruption of measles. In some cases we have seen the petechiæ appear and disappear several times in the course of one and the same disease.

Let us now endeavour to ascertain the importance of the petechiæ in fever.

Quarin has stated, that petechiæ are common in putrid fever, less frequent in malignant fever, and very rare in inflammatory fever. Dehaen repeats, in several of his works, that stupor and prostration do not necessarily accompany the development of petechiæ. He has seen the spots come on during the progress of the slightest fevers. Stoll has made the same remark. Likewise, with respect to treatment, these authors recommend us to be guided chiefly by the aggregate of the other symptoms.

Our experience entirely confirms the preceding statements. We have seen petechial spots appear during the course of the mildest fevers, without any exasperation of the symptoms following their appearance.

These slight fevers, with petechial eruption, presented themselves under somewhat of an epidemic form. They began to appear towards the end of May; they became very numerous during the months of June and July; they then became somewhat diminished in August, and disappeared in September. In all these cases the eruption was discrete, and presented a rose-coloured tinge.

But, as had been well remarked by Hoffmann, Mead,* and Quarin, should the petechiæ be numerous, or of a bad colour, they are an unfavourable sign, and accompany an adynamic state more or less alarming. Of this we may satisfy ourselves by referring to several of our cases. In some of them we see

* Quo plures numero comparent, eo gravior subest metus. Maximum autem vitæ periculum ostendunt, cum nigræ vel lividæ evadunt.

that it was a little time after bloodletting had been employed, or after profuse epistaxis, that the spots appeared together with the stupor.

In another case, on the contrary, the petechiæ and stupor disappeared after the application of leeches to the anus. On the day after, the eruption again appeared, without being accompanied by more severe adynamic symptoms.

In other patients the petechiæ, after having appeared during the worst stage of the disease, survived in a manner all the other symptoms, and a few of them still continued during convalescence.

At other times we have seen the petechiæ fade and disappear on a sudden at the moment when the adynamic state became most decided.

In one case the petechiæ, after having increased in number according as the stupor increased, almost entirely disappeared the day before death. In another patient their increase in number and in the brownness of their colour marked the progress of the adynamic state. They disappeared all at once at the same time that the nervous symptoms preceding death manifested themselves.*

Huxham and Ramazzini have spoken of critical petechiæ. Pringle and Sarcone deny their existence. In only one case Sarcone saw the petechiæ disappear at the same time that the other symptoms of the disease increased in severity, and reappear according as these symptoms became more mild. For our own part we have seen on two occasions the appearance of the petechiæ to coincide with a perceptible diminution of the symptoms.

Beside the petechiæ, those broad livid spots, or *vibices*, may be naturally placed which existed in Case 14, and which seem to be but a variety of the petechial eruption. They continued for only twenty-four hours. It was this same patient whose blood presented a sanious appearance. This case is not devoid of interest.

In some of our patients we observed an eruption of *sudamina ;* this eruption occurred particularly over the abdomen. On gently passing the extremities of the fingers over the skin of this part, a number of small inequalities were felt, which gave it a rough appearance. These inequalities consisted of a crowd of miliary vesicles, as it were crystalline, with parietes perfectly transparent, and containing a little limpid serum. The slightest handling destroyed them. After having continued for one, two, or three days at most, these vesicles disappeared, and in the place which they had occupied there was observed a desquamation of the cuticle.

In one case only the *sudamina* became much more developed. Several of them were seen to combine, and form large vesicles. One would say that it was pemphygus. It was in this individual that the remarkable eruption of *sudamina* appeared at one and the same time over the abdomen, thorax, neck, and arms, but principally around the axillæ.

In this patient and in four others profuse sweats preceded or accompanied the eruption; but as sweating equally profuse is observed in many persons who exhibit no *sudamina*, it is reasonable to suppose that the *sudamina* cannot occur without a special physiological or pathological disposition of the skin. Besides, in two other cases no remarkable sweat took place. In the subject of Case 49, the appearance of the sudamina coincided with a perceptible improve-

* The following fact told me by M. Senn, house pupil at the Hotel, seems calculated to prove that the petechiæ must be considered as the result of general debility. A man, under the care of M. Dupuytren, was seized with profuse epistaxis, which could not be arrested. After some time it was no longer natural blood, but only a sort of serous liquid that flowed through the nostrils. The patient was threatened with dying of exhaustion. In the midst of this state of anemia, numerous petechiæ appeared on the trunk and extremities; the epistaxis ceased, and according as the strength returned, the petechiæ faded. Like hemorrhages, petechiæ may then be divided into active and passive.

ment in the symptoms. Five times this eruption appeared in summer, and twice in October and February.

In one individual only did we observe a miliary eruption (Case 64); it appeared towards the twenty-first day, at the same time that the *sudamina* appeared, and a slight diarrhœa set in. The eruption covered a portion of the chest and abdomen, continued from three to four days, and seemed to contribute towards the crisis of the disease.

An anormal eruption somewhat resembling purpura appeared over the chest and epigastrium in the subject of Case 11, about fourteen days after his health began to be impaired. This eruption lasted but twenty-four hours, and appeared to exert no influence on the case.

In some of our cases, as in Case 20 and 72, varioloid pustules were observed. In one individual these pustules covered the epigastrium at the time when ataxo-adynamic symptoms of a very bad character existed; they brought no relief; in another patient they again appeared first on the epigastrium, and then extended to the thighs. They were observed to appear at the same time that nature seemed to make an effort towards a cure. Again, in another case they were observed during convalescence; they appeared successively on the thighs, face, and on the arm (Case 72).

In cases of bad fever, the skin very readily becomes gangrenous, or ulcerates in those points where it has been the seat of slight irritation. Where the skin remains for some time subjected to some pressure, and where a sanguineous congestion, entirely of a mechanical nature, takes place, this species of passive hyperemia is very often followed by an eschar; and when the latter is detached, the ulceration which ensues from it rapidly extends in depth, and attacks even the bones. This is observed principally in the region of the sacrum, and of the great trochanter.

In the same individuals, more frequently than in other patients, blistered surfaces assume a brown colour, or evince a tendency to ulcerate. In them, also, the slight engorgements occasioned by leech-bites terminate more frequently, than in other cases, in a slight ulceration of the skin. In the place of each leech-bite there is observed a solution of continuity, which seems to have been made with nippers, and around which the skin exhibits no alteration. These ulcerations occur most ordinarily in persons who are in an advanced stage of the adynamic state; and they have always appeared to be a most unfavourable sign. In one case, their appearance followed a profuse intestinal hemorrhage.*

* Whilst we acknowledge that the disposition to gangrene of the skin is less uncommon in bad typhoid fevers than in other diseases, we think that even in these fevers the frequency of such a phenomenon is much exaggerated. With respect to internal organs, their gangrene is still more uncommon than that of the skin. With the exception of the cases, which are even less numerous than has been stated, in which we ascertained in the exanthematous patches of the intestine an appearance of eschar, our cases furnished us with only one case of gangrene: it was in the lung of the individual who forms the subject of our fifteenth case; and in this instance it was very evident that this gangrene was merely accidental, and altogether independent of the principal disease. How often have we not heard of the frequency of gangrene in fevers called adynamic, putrid, &c.? What consequences have not been drawn from it, with respect to the nature of these diseases? In this case, as in a thousand others, as in that where it is supposed that everything can be explained in bad fevers, either by the alteration of the blood, or by gastro-intestinal irritation, we shall repeat what Sydenham said of several physicians of his time: Si quando symptoma aliquod, quod cum dicta hypothesi apposite quadrat, revera morbo competat, cujus typum delineaturi sunt, tum illud supra modum evehunt, ac plane reddunt ex mure elephantem, quasi in hoc scilicet totius rei cardo verteretur, sin hypothesis minus congruat, aut prorsus silentio, aut levi saltem pede transmittere consueverunt, nisi forte beneficio subtilitatis alicujus philosophicæ in ordinem cogi ac quoquo modo accommodari possit.

ARTICLE III.

TREATMENT.

In the preceding cases, we have seen the patients who form the subjects of them, subjected to the most different modes of treatment. Some took, during the entire progress of this disease, nothing but simple diluents of an acidulous or mucilaginous nature: they observed strict regimen and repose, and no active treatment was employed with them. Others took no other medicine internally than these same diluents; but bloodletting, to a greater or less extent, was resorted to. In several, the skin was covered with sinapisms, or blisters, or irritated by stimulant frictions. In some, cold applications were made to the head, and baths of various temperatures were employed. Purgatives, and more frequently emetics, were employed in a considerable number of cases; and lastly, with others, a tonic and stimulant treatment was adopted. Several, either at the same period, or at different stages of their illness, were treated, at one and the same time, or successively, by two, three, or four of these methods.

If we now endeavour to estimate the influence of these different modes of treatment, we shall find the most serious difficulties in the inquiry. For all we might cite instances of success, and for all even the reverse, according as we should dwell more particularly on the one or the other; it would be easy, then, to find motives for preferring or excluding such or such a treatment; we might even take a more convenient station, and say that, *according to the cases*, such or such a treatment should be preferred. But whilst thus confining ourselves to the generalities of the question, we should not make much advance in it, and certainly we should not be able to solve it, because the elements of its solution do not exist in our cases. It seems to us that whatever may be the method of treatment employed, there is a certain number of cases in which nature conducts the affection to a favourable or fatal termination, without the treatment having any share in the result. From this, however, it must not be inferred, that our therapeutic means exercise no influence on the progress and mode of termination of fevers. But if nature performs so considerable a part here, it is manifest that in order to appreciate the influence of the treatment, whether it be injurious or serviceable, it is necessary to collect and subject to a rigorous examination a much greater number of facts than ours, to the end that, the same results being reproduced a great number of times, we may be able to calculate what belongs to nature and what belongs to art. The writers on epidemic diseases have not proceeded in this way, the majority of them thinking it sufficient to point out, in a general way, what treatment has appeared to them to succeed best. The treatment which was deemed most successful in their hands was almost invariably that which was suggested to them by the theory under whose influence they observed the diseases. Thus, very little advantage can be derived from what they have transmitted to us as the result of their experience in therapeutics. It would not have been so, if, instead of general results, they had drawn up tables exhibiting the number of patients subjected to such or such a mode of treatment. The man who merely publishes some cases and observations on a disease, should do nothing else than note a simple coincidence between the employment of such or such a treatment, and the favourable or unfavourable termination of the disease. It is only when this coincidence has been repeated very frequently, that it is allowable to consider as connected together two facts which presented themselves together so frequently. By collecting the numerous observations published by men of all opinions on this particular point, we think that the treatment of fever might be

not a little benefited. However important this subject may appear to us, the nature of this work does not allow us to dwell on it. Without going beyond our own cases, and, consequently, without intending to draw any general conclusions, we shall endeavour to recapitulate, in a few words, the various phenomena observed in our patients whilst they were submitted to different kinds of treatment. We shall present each mode of treatment separately, and shall trace the changes which coincided with their employment; first, in the general aspect of the disease; secondly, in its principal symptoms. This will be a commencement of the great work which we would wish to see undertaken by collecting, in a therapeutic point of view, the numerous cases of fevers scattered through different authors. We shall add, that even this work can be useful only on this condition, that it should not be forgotten that the number of successful, as well as that of unfavourable results, constitutes in a manner but an ideal majority; for very few authors have published all the cases observed by them, and the greater number of them have been solicitous to transmit to us those cases only which favoured their own theories. Read, for example, the cases published by the disciples of Brown; you will there find no instance of bad fever successfully treated by bloodletting; still these cases exist, and they must have seen them as well as we. Read, on the other hand, the collections of cases published by the followers of M. Broussais' school; you will not find therein a single case of these same diseases which recovered when treated by tonics; and yet such cases must have occurred on all sides of them, and they must have seen them.

SECTION I.

TREATMENT BY STRICT DIET, AND MUCILAGINOUS OR ACIDULATED DRINKS.

A considerable number of our patients were subjected to this mode of treatment. In some the affection was slight, in others it was severe; and we observed the various symptoms of typhoid fever, such as the various phenomena regarding the innervation, delirium, stupor, prostration, tongue dry or black, meteorism, petechiæ, etc.

During the employment of this mode of treatment we observed all the symptoms to improve in several, and the disease to terminate as promptly and as favourably as in others placed under similar circumstances, and with whom bloodletting was employed. We have frequently seen a severe attack of fever terminate in twenty-four or forty-eight hours in persons in whom the disease was occasioned by bad living, and who were rapidly restored to health by strict regimen and rest, and nothing further.

We are not disposed to think that continued fevers, *thus left to nature*, had a determinate duration, and that they terminated on certain days rather than on others; and with respect to these affections, the ancient doctrine of critical days appeared to us completely erroneous.

With respect to crises, should they not be particularly evident in those cases wherein no active treatment had interrupted or thwarted what is called *the progress of nature;* still the phenomena to which the name of *crisis* has been given did not mark the termination of the disease except in a very small number of cases. In only four did the appearance of a profuse sweat coincide with the cessation of the fever, and the other morbid phenomena. In other cases there was still some sweating towards the termination of the disease; but, from the circumstances under which it appeared, even the ancients would have hesitated to assign to it a critical character. As an instance of this, we may refer to the young girl who forms the subject of our 49th case. In her an habitual sweat from

the axilla was restored as soon as convalescence commenced. But, in this case, can we see anything else but the re-establishment of a secretion, which had actually become an element of health, which had been suppressed by the disease, and which must reappear from the moment the disease ceases? Still less shall we consider other sweats as critical, which, under the influence of the expectant method, the results of which we are now examining, appeared long before the termination of the disease. In fact, in several individuals, also treated in this way, no sweat, nor any other critical phenomenon, was observed. In the subject of case 13th, who, during his tedious and severe illness, was also treated according to the expectant method, one of the lower extremities became, during convalescence, the seat of a profuse suppuration, which carried the patient to the grave.

Besides those patients with whom the expectant method alone was employed, there are others who were treated according to it only at the commencement of their illness; at a later period an active treatment was employed to check the increasing progress of the disease; sometimes an evident improvement followed this change of treatment; but sometimes, too, the disturbance occasioned in the system by the active treatment employed was not more advantageous than the expectant system had been salutary, and the disease still progressed towards a fatal termination.

Other patients, on the contrary, were subjected, from the very commencement, to different sorts of treatment more or less active. No benefit resulted from it, and the disease continued stationary, or became worse. It was under these circumstances that, giving up all active treatment, we contented ourselves with keeping the patients on diet and simple diluent drinks; only, in some instances, weak broths, or a little wine, were added to these drinks. Some of our cases furnish us with instances in which a return to the expectant method was attended with advantage. We discontinued to torment nature with remedies which were followed by no improvement; we contented ourselves with removing everything which could do harm, and the cure was the result of the mere effort of nature, aided by simple hygienic means.

If we now wish to appreciate the influence of the simple expectant method over the great functional disturbances of the different organs, we shall come to the following results:—

Let us first study its influence on disturbances of the digestive passages.

Anorexia. Bad taste in the mouth has in general disappeared only by degrees, in persons submitted to this mode of treatment. In several instances diet and diluents, continued for a long time, proved unable to remove these symptoms, which, in the individuals who form the subjects of those cases, yielded rapidly to the use of evacuants.

Some entered the hospital with vomiting, which continued as long as they took nothing but diluents, and which afterwards ceased after the employment of other means, as we shall see presently.

Under the influence of the expectant method, the tongue, in several instances, presented no change, and its aspect was not altered till other treatment was tried. Thus, in some cases, it retained its uniform whiteness, its yellowish coat in others, its white appearance, with red points, in several; in others, its uniform red colour, with continuance of its moisture; and in others its redness and dryness; in others, too, its black appearance. In these latter cases we were enabled to see that it is not true, as has been stated, that it is only after the employment of tonic medicines that the tongue becomes black.

In several other persons, who were also subjected to the same treatment, not only the state of the tongue was not improved, but this organ assumed an appearance corresponding with the increase in the severity of the other symptoms of the disease. We have, for instance, seen it become redder and redder, and

also become dry, brown, and incrusted in cases 25 and 64, as well as in a few others.

To conclude, in some patients, who, like the preceding, do nothing but observe strict diet and drink barley water, the tongue throws off its coats, resumes its moist appearance, and returns slowly or rapidly to its normal state. In one case the tongue, which was covered with a thick yellowish coat at the time the patient entered the hospital, became red and dry as soon as bleeding was resorted to. The patient was then treated according to the expectant method. At first the tongue remained red and very dry; it was then observed gradually to recover its natural appearance, at the same time that the other symptoms became improved. The same may be said of two other cases, in both of which the dryness of the tongue appeared or increased after bloodletting, and gradually recovered its moisture and red colour; once the disease was left to nature. In one or two cases the foulness of the tongue was not at all influenced by bloodletting, whilst the employment of the expectant method gradually restored the organ to its natural state. In some of our patients the tongue, which was red and more or less dry at the time of their admission, gradually recovered its normal appearance without the employment of any active treatment. In two or three other cases the brown or black colour of the tongue also disappeared under the sole influence of diet and diluents, no other treatment having been employed. In others, again, the uniform whitish coat which covered the tongue disappeared without anything else having been prescribed but diet and acidulated or mucilaginous drinks.

In several of the cases the diarrhœa was neither increased nor diminished by the expectant method of treatment. In one case it appeared for the first time whilst the patient was under this mode of treatment. It at first increased in one of our patients; then, after an ineffectual application of leeches to the anus, it gradually ceased. Again, under the influence of the mere expectant treatment, the diarrhœa gradually diminished in a great number of our cases. Of these latter some had not been subjected to any active treatment; others had at first been bled, which did not appear to exercise any influence on the diarrhœa. In one patient, one of those put on the expectant method of treatment, the diarrhœa disappeared suddenly at the same time that a perspiration set in.

The mere observance of strict diet, and the use of diluent drinks, have been followed by the slow or rapid disappearance of the febrile disturbance in several cases. This same treatment put a termination to the fever after we had ineffectually tried bloodletting in some cases, evacuants in others, and tonics in several.

Lesions of the respiratory apparatus have not been more common in persons treated by simple diluents than in those submitted to a more active treatment. Pneumonia being once developed has not, generally speaking, been left to itself, when once its existence has been ascertained.

Some individuals, in whom the nervous symptoms predominated, have been submitted exclusively to the expectant method. In the subjects of some of our cases, the stupor, delirium, prostration, and coma disappeared, whilst the patients took nothing but barley water. In others these same symptoms, ineffectually met by bloodletting, gradually disappeared under the influence of a simple expectant method of treatment. In others this method, at first employed singly, did not prevent the nervous symptoms from appearing and increasing; but in these cases the other methods substituted for it (antiphlogistics or tonics) were not more serviceable. Again, in other cases, the nervous symptoms, which became more and more developed while simple diluent drinks were employed, disappeared as soon as tonics were substituted for them.

The antiphlogistic treatment and the tonic treatment have been, each in its turn, accused of producing petechiæ. However, in several of our cases these spots appeared at a period when no active treatment had been as yet employed.

An eruption of sudamina also appeared in one patient, when he had not yet taken anything but barley ptisan.

SECTION II.

TREATMENT BY BLOODLETTING.

Bloodletting was employed in a very great number of our patients. Whilst it was evidently serviceable in some, it proved ineffectual in others; and in several its employment was followed so rapidly by an exacerbation of the symptoms, that we have been disposed, in more than one case, to attribute the change to it. However we must not lose sight of several circumstances which might have contributed to render bloodletting much less effectual in these cases. In the first rank we must place the advanced period at which several patients were bled for the first time; some already presented a state of prostration, which was almost invariably increased after the bleeding. In some the bleeding seemed to do harm by being excessive; in others, on the contrary, the leech-bites yielded so little blood, that the good or harm, following their application, could not be fairly attributed to them. Again, in many cases, it was difficult to distinguish the real influence exercised by bleeding, because it was not the only means employed, and oftentimes, either simultaneously with it, or previously or subsequently to it, other means had been resorted to — sometimes cutaneous revulsives, sometimes tonics and internal stimulants, and sometimes evacuants.

Several patients as yet presented no bad symptom when they were bled; they merely exhibited that group of symptoms of what is called bilious or inflammatory fever; after the bleeding, the state of some became suddenly worse. In others no change was observed at first; then the disease gradually progressed towards a fatal termination. In this case the bleeding exercised but a purely negative influence; it did not arrest the evil; but it is a matter of doubt whether it may not have contributed to increase it. The number of patients in whom the affection became worse immediately after bleeding was greater than the number of those in whom the affection continued to go on in the same way as it had before the patients had lost any blood.

In a few of our cases the first bleeding was followed by a manifest improvement, which disappeared after the bleeding was repeated.

Of thirty-five individuals who were bled, and whose illness terminated fatally, seven were bled at the onset of the disease, from the first to the fourth day. Nine lost blood from the fourth day exclusively to the eighth inclusively. In five bleeding was employed from the eighth to the twelfth day. Three were bled from the twelfth to the sixteenth day. In the others blood was taken at periods which we cannot state precisely, but in most instances it was at a time remote from the onset of the disease.

We shall now speak of other patients who recovered after having been subjected, like the preceding, to one or more bleedings. The bleeding was far from having the same influence on all. Some manifested a sudden improvement after losing blood; in them it was scarcely possible to doubt the advantage of the bleeding. This occurred in thirteen of our cases. But in none of these thirteen, except one, was the disease suddenly removed by the bleeding; the symptoms merely were improved, and probably its duration shortened. It is not, then, so very common an occurrence to see a disease suddenly arrested, and, as it were, strangled by bloodletting. Such a claim for its beneficial effects is entirely unsupported by clinical experience.

In one case the first application of leeches to the anus was not followed by any change: they were applied a second time, and a rapid improvement took place.

In another case no improvement followed the first bleeding, which was employed on the sixth day; after a second, which was employed from the eighth to the ninth day, all the symptoms suddenly disappeared at the same time that a perspiration came on.

In another the disease improved after the first bleeding; then, a very little time after, a new exacerbation of the symptoms was observed, which disappeared after the application of leeches.

Of these thirteen patients some were bled during the first days of their illness, but others of them not till the seventh or eighth day; others at a still more advanced period, as towards the fourteenth day. In the young girl who forms the subject of one of our cases, leeches were repeatedly applied during the entire course of the disease; they were continued at a time when the prostration was very great.

We shall now consider the influence of bloodletting in the twenty-six other individuals, who also recovered after having lost more or less blood. Very different from the thirteen above mentioned, they manifested no improvement immediately after they were bled. Thus we saw the disease pursue its course, then diminish progressively without seeming to have been in any way influenced by the treatment in several of these cases. Of these there were two, however, in whom the bleeding seemed to have been beneficial, not against the principal disease itself, but to arrest the progress of a pneumonia which supervened.

Again, in some other individuals, the disease became worse so suddenly after bleeding, that the latter measure seemed to us to have contributed to this effect, and the improvement did not commence till a certain time after its employment.

In these twenty-six cases the bleeding was seldom practised at the commencement, but most frequently at a more advanced period of the disease.

To recapitulate, among nearly eighty individuals labouring under continued fever, light or severe, and treated by bloodletting, local or general, we find but sixteen in whom a visible improvement, which cannot be called in doubt, immediately follows the opening of the vein or the application of leeches. And again, of these sixteen cases there are three in whom the amendment disappeared after the bleeding was repeated. Observe, again, that in two or three of these sixteen cases, at most, the disease was arrested all at once after the bleeding; that in all the others it was only improved, and that this improvement was principally marked when the period at which the bleeding was performed coincided with that when, in our patients treated according to the simple expectant method, we saw that there was tendency to a similar improvement taking place spontaneously.

Of the remaining individuals, we find thirty-four in whom, after one or more bleedings, the disease still continues its course, so as to terminate in death, or in a return to health. Here the bleeding no longer has any immediate influence; but it is not unreasonable to think, that in several of these cases it might dispose to a favourable termination of the disease.

In twenty-four other cases we observe, after bloodletting, an exacerbation of the disease, as immediate and as marked as the improvement had been in the sixteen individuals above mentioned; so that the same reasoning which inclines us to attribute the benefit which these latter experienced, to the bleeding, must also make us admit that it was the bleeding which rendered the state of the former worse. For our part, we shall take all these facts into account; we shall reflect on all the details of each case, in order to discover the circumstances which could have occasioned such opposite results. But we shall feel that we have only laid down some corner-stones; and we shall wait till sufficient materials have been amassed, in order to think ourselves warranted in pronouncing on the

benefit or injury which may be attributed to the bleeding in these different cases.

Let us now consider what was the influence exercised by bloodletting on some of the most prominent functional disturbances observed in the course of fever; and before we go further, we shall say, that in a great number of cases these functional disturbances, thus examined one by one, are found to be much less modified by bleeding, then one would have been inclined to admit *à priori*.

Thus, in a considerable number of our patients, the anorexia, and bad taste in the mouth, were not lessened after venesection, or after the application of leeches either to the abdominal parietes or to the anus.

In several cases, where acute pain existed, which was increased by pressure, whether at the epigastrium, in the ileo-cæcal region, around the umbilicus, or over the entire abdomen, bleeding was immediately followed by the disappearance of this pain. In the subject of one of these cases, one general bleeding was all that was employed. In the others so affected, leeches were applied, either to the anus, or to the abdominal parietes. The subject of one of these cases had a very acute pain in the epigastrium, which disappeared after this part had been covered with leeches. Another of these individuals complained of pains over the entire abdomen, which were exasperated after the employment of an emetic; in this case there was this peculiarity, that the leeches, instead of being applied over the abdomen, or to the anus, were applied to each side of the chest in consequence of a distressing cough under which the patient laboured; the day after the leeches were so applied, there was no longer any trace of abdominal pain.

But we were far from succeeding in removing this pain by bloodletting in all the cases wherein it existed. In one case, it became merely less intense, but did not disappear, after a general bleeding. In two other cases, wherein the vein was opened, but in which no leeches were applied, it continued without any abatement. In another patient, the general pain of the abdomen still continued after bleeding; but it disappeared after the application of leeches to the anus.

The different appearances of the tongue in fever may be very differently modified by bloodletting, as the following recapitulation will show:

First Case.—Tongue covered with a white or yellow coat, without any trace of redness, still remaining moist.

Nineteen individuals presented this appearance of the tongue, when bloodletting began to be used. In ten of them, the tongue did not change its appearance after bleeding. In seven others, a very remarkable change was observed in the appearance of the tongue after bleeding; in some it became red; in others dry and black. In only two of these nineteen individuals, did the tongue resume its natural appearance; and we must again observe, that in one of these this return of the tongue to its natural appearance did not take place suddenly.

Second Case.—Tongue red, with or without the admixture of any coat, still retaining its moist appearance.*

Twenty-three persons presented this appearance of the tongue, when bloodletting began to be employed with them.

* Under this second case we include, first, the tongues, which are of a uniform more or less bright red through their entire extent, without being covered with any coat; secondly, those which present a white or yellow coat with red points; thirdly, those which, being white or yellow at the centre, present a red appearance at their edge or apex.

In eight of them the tongue underwent no change after the bleeding. In three others it became dry immediately after the patients had lost blood. In another it became dry after two bleedings had been performed, with a very short interval between them. Still, notwithstanding this unfavourable sign, the patient was bled a third time; after which the tongue not only became moist, but also lost its redness.

In another case the tongue became covered with a thick yellowish coat after venesection.

To conclude; in ten of these twenty-three individuals, the bloodletting was rapidly followed by the return of the tongue to its normal state. In some of them leeches were applied to the anus, or to the sides of the chest. In the others, venesection was the mode employed.

Third Case.—Tongue dry, either with a uniform red colour, or with a pale colour; or with a white or yellow coat on its surface.

Nineteen individuals presented this appearance of the tongue when they were bled. In four of them the tongue underwent no change after bleeding. In a fifth the tongue became moist at first, after the application of leeches to the anus; it afterwards soon resumed its dry appearance, which was not removed by a second application of leeches.

In ten cases the tongue became drier, or black, after bleeding. In one of these cases leeches were applied to the epigastrium several days in succession.

In only four cases did the tongue become moist immediately after bleeding. In one the dryness of the tongue did not disappear after the first loss of blood. On the contrary, the tongue began to become drier after the first application of leeches to the anus; it became moist, but changed the yellow coat which covered it into a bright red after a general bleeding; at length it recovered its normal appearance, after a second application of leeches to the anus.

Fourth Case.—Tongue dark-coloured, with or without incrustation of the lips and teeth.*

Only four persons were treated by bloodletting, with such an appearance of the tongue. In three of them this appearance continued after the bleeding. However, in one of these three individuals the tongue, without having lost its black colour, appeared more moist the day after leeches were applied to the anus; and as a tonic treatment was immediately commenced, the ulterior effects of the bleeding, with respect to the tongue, can no longer be appreciated.

In the fourth of these cases the dark appearance of the tongue increased after fifteen leeches had been applied to the anus. Forty-five patients were treated with bloodletting during the existence of diarrhœa, more or less severe.

Of these forty-five individuals, there are nineteen in whom venesection was performed once or oftener; and twenty-six others in whom leeches were employed in different points; in nineteen cases to the anus (once or oftener); in three cases to the abdominal parietes; in four cases to other parts, either behind the ears, or to the neck, or the chest.

Let us now consider the influence exercised on the diarrhœa by these different modes of bleeding.

1st. *General bleeding.* — It possessed no influence over the diarrhœa in eleven cases in which it was employed. In two cases it was followed by slight

* Since these cases were collected, we have often tried the application of leeches to the anus, and particularly to the epigastrium, in patients whose tongue was dry and black, or only viscid and brown; and the general impression on our minds from such trials is, that in the very great majority of cases, the bloodletting had at least no beneficial influence on this state of the tongue. This has also been laid down by M. Broussais.

diminution of the purging, but it did not stop it. In five cases the diarrhœa was increased after venesection.

We may add, that in some patients who had no purging at the time they were bled, venesection did not prevent the occurrence of this symptom.

2d. *Application of leeches.*— In seven of our cases the application of leeches to the anus did not prevent the continuance of the diarrhœa. In one case the diarrhœa was increased after this application. It was diminished after this application in six cases. In four of our cases the application of leeches immediately removed the diarrhœa altogether.

When applied in three cases over the abdominal parietes, once to the ileo-cæcal region, and twice to the epigastrium, in none of these three cases did the leeches exercise any influence over the diarrhœa.

In the four cases wherein the leeches were applied to other parts, different from the abdomen or anus, no change was produced in the purging.

Thus in twenty-six individuals, who lost blood from other parts than the anus, there was not one in whom the diarrhœa ceased ; in two only it underwent a slight diminution ; and in several it was increased.

In nineteen persons who lost blood from the anus, we find ten in whom the diarrhœa was lessened, or ceased immediately ; it increased in one only, but in seven it continued.

In one case intestinal hemorrhage occurred, after the patient had been bled several times successively.

Meteorism, which, in bad fevers, has been often considered as a mere product of intestinal irritation, is one of the phenomena of those diseases against which bloodletting has appeared to us least beneficial. When this treatment was employed during the existence of the meteorism, it did not stop it, or it did not even prevent it from increasing ; and when employed at a period when the meteorism did not yet exist, bloodletting, whether general or local, has been rapidly followed by the appearance of this symptom in several cases. We shall further observe, that of the seventy-four cases in which bloodletting was employed, that were but sixteen in whom we saw the meteorism occur after this bleeding ; it would, therefore, be premature to say that it contributed to its production ; and all that can be inferred is, that the bloodletting did not prevent the development of the meteorism. We shall see presently how this phenomenon is modified under the influence of a treatment entirely different from the antiphlogistic.

The febrile movement was stopped after bloodletting in only a very small number of our patients. In others the fever was only diminished after bleeding ; whilst in some it only became more intense after this mode of treatment. What was principally observed in several instances, was the increased acceleration of the pulse, according as the bleeding was repeated, or immediately after a single bleeding was employed. But in the great majority of febrile movement did not, after bleeding, undergo any immediate modification, which could be attributed to it. It continued as before ; then, without having appeared in any way directly influenced by the bleeding, it gradually either increased or diminished.

The nervous symptoms presented by our patients were often met by bloodletting, the employment of which was far from being invariably attended with favourable results, as we shall see.

These symptoms were not diminished after bleeding, more or less frequently repeated in seven of our cases. They were improved in five instances, and in fifteen cases they were rendered much worse. Thus, in twenty-seven individuals who were bled during the existence of these different disturbances of innervation, there were only five in whom the nervous disturbances were diminished. In seven cases these disturbances did not appear to be influenced in

any way by the bleeding; and in fifteen everything became worse after the patients lost blood.

If we would go beyond the circle of the particular facts contained in this work, we would say that, in many other similar cases wherein we also tried to combat the nervous symptoms of bad fevers by bloodletting, we arrived at the same results; and we have seen these symptoms sometimes yield to bleeding, but most frequently resist it; sometimes, also, become visibly worse after each bleeding. Such facts have so frequently fallen under our observation, that we are firmly convinced that repeated bleeding not only will not cause the nervous symptoms of bad fevers to disappear, but that they occasionally exercise a direct influence on the exasperation of these symptoms. And observe, that this exasperation takes place not only in those cases where the individuals are in a state of prostration and stupor, where, in a word, the adynamic state predominates; this exasperation, after bleeding, is equally observable in several individuals whose strength is far from appearing to be exhausted, who manifest symptoms of delirium, the different aberrations of sensation and motion, and in whom, in a word, the ataxic state predominates.

It appeared to us, also, that in almost all cases, when no amendment is obtained, or when the nervous symptoms increase after the two first bleedings, it is dangerous to repeat the operation.

But this is not all. This part of the work contains a number of cases in which the nervous symptoms developed themselves immediately after the patients were bled. See Cases 1, 4, 13, 17, 19, 20, 68, 69, 72.

From these latter facts, we shall merely draw the conclusion that bleeding, employed at a period when the innervation as yet presents no disturbance, does not prevent this function from being subsequently disturbed? Shall not these facts induce us to inquire whether, in certain cases, the loss of blood which the patients sustains is not the direct and immediate cause of the disturbances of the innervation which he manifests? What we have seen in this respect scarcely allows us to doubt but that this is sometimes the case. But, to solve this question satisfactorily, how many facts are not still wanting!

There are, moreover, many other phenomena connected with bad fevers, in reference to which the questions just proposed may be again started. What influences, for instance, has bloodletting on epistaxis, which appears so often in different stages of these diseases? By reference to our cases, we shall find some in which nasal hemorrhage came on after bleeding. We find other cases, also, in which, notwithstanding bleeding was resorted to, the attacks of epistaxis became more and more frequent, according as a vein was opened, or leeches were applied.

After epistaxis, we shall consider the phenomenon of petechiæ with respect to the influence of bloodletting on those small cutaneous hemorrhages. In several cases these hemorrhages came on after bleeding. In no instance did bleeding appear to contribute to their disappearance. We have already mentioned a fact which proves beyond doubt the influence which excessive loss of blood exercises on the production of petechiæ. We may remark, that we have seen them cover the skin with almost equal frequency, both in those who had been and in those who had not been bled.

SECTION III.

TREATMENT BY EVACUANTS.

Forty-six of our patients were subjected to this mode of treatment; ten took only purgatives, and thirty-six took emetics, generally uncombined; sometimes, however, in combination with cathartics.

In the ten individuals who were only purged the following results were observed : — Only one of them found any beneficial effect, but this individual was placed under particular circumstances. The cause of the fever, and of the other bad symptoms in this case, was attributable to an accumulation of fæces of long standing, and a cure was effected by removing these.

In four other cases the purgatives employed, whether at the onset of the disease or during its progress, did not curtail its course ; neither did they appear to exercise over it a directly injurious influence. However, in these four cases the disease terminated fatally.

In five other cases the employment of purgatives, given by the mouth or in the form of lavement, was followed by a more or less immediate exasperation of the symptoms. The individual in question took a great number of laxatives during the course of the disease. In these five individuals the affection terminated fatally.

Of thirty-six patients who took emetics, three experienced no perceptible effects from them ; eleven found them injurious, either immediately, or after an improvement which was but transitory. Twenty-two recovered rapidly after having taken tartar emetic or ipecacuanha.

In the majority of cases of this third class, the change for the better which followed the employment of the emetic was so prompt and so marked, that it is impossible to refuse to allow that the treatment had an active share in the cure. But we should be cautious in supposing that it was in as great a proportion as the recoveries which took place after emetics. This proportion is found so considerable in our cases only because, as we wished to prove that these emetics are not only oftentimes unattended with danger, but that their efficacy is at times very great, we are obliged to select, amidst a great number of facts, those whose efficacy might be least disputed. Had we published all the cases which we have met with in which emetics were given, we should have found a considerable number wherein we should have seen the disease no more influenced by emetics than it was in other cases by bloodletting. We might also have found a greater number than that cited by us in which the employment of emetics was very injurious.

From the results of the cases contained in this volume, we should not then infer that the treatment by emetics was more successful than other modes of treatment. But the consequence to be drawn is this, that emetics may be given with impunity in some cases, and that, in others, they are followed by an improvement which we had to no purpose endeavoured to obtain, either by the simple expectant method, or even by bloodletting. What are now the cases in which it is right to have recourse to emetics ? This will be shown to us by the examination of the influence of these medicines over the principal symptoms of fever.

There are few functional disturbances of the digestive passages which we have not seen to disappear promptly after the employment of an emetic.

Thus the loss of appetite and bad taste in the mouth ceased after vomiting was excited in several of our patients.

The nausea and vomiting which annoyed some of our patients did not appear after they took an emetic.

After the employment of these same means, we saw the pain in the epigastrium, and the constriction or weight in the same region, disappear in some of our cases.

Some of our patients, to the number of twenty-five, had their tongue covered with a white or yellow coat, more or less thick, without the admixture of any redness, without any contraction of its muscular tissue, its moist appearance still remaining, when they took a simple emetic, or an emeto-cathartic.

In only two of these twenty-five cases did the state of the tongue become

worse after the emetic; it became red and dry. In six of these same patients the tongue remained what it was before vomiting had been excited. In the remaining seventeen the tongue resumed its natural appearance in twenty-four or thirty-six hours.

In one case, in which the tongue was covered with a uniform whitish coat, as in the preceding, and also presented an appearance of commencing dryness, an emetic was given, and the tongue rapidly returned to its normal state.

Instead of being white or yellow, without any mixture of redness, the tongue presented either uniform redness, without any coat, or a red tint at the apex, edges, or centre, with a coat on the other parts, or else a cluster of red points over its entire surface, as was observed in ten of our cases. Notwithstanding such a state of the tongue, these ten patients were treated with emetics.

In four of these ten the tongue resumed its natural appearance a little time after an emetic had been given, but with circumstances to which it is important to revert. Thus, in one case, the tongue presented a white appearance, with red points, and was beginning to become dry; the latter phenomenon disappeared after a bleeding: it was then an emetic was given, which purged without vomiting. In another of these four cases, to be sure, the tongue lost some of its redness after the patient had vomited; but every other symptom became worse. In another of these four patients, whose tongue presented two white lateral bands, with a red appearance of its centre, this tongue did not resume its natural appearance till a profuse perspiration was brought on by vomiting with six grains of ipecacuanha.

In three of those ten cases the tongue underwent no change after the administration of an emetic. Again, in the three others the tongue became redder, or was even dry, after an emetic was taken.

Diarrhœa, of greater or less severity, affected sixteen individuals when an emetic was given to them. In only two of these sixteen persons the diarrhœa was not modified.

In the other fourteen it was suspended; but this suspension did not always occur in the same way; sometimes the diarrhœa ceased abruptly, and did not reappear; and sometimes it continued for twenty or thirty hours, and then ceased. In several instances it appeared more profuse on the day the emetic was given, and the following day it disappeared. At other times, after having ceased immediately after vomiting had been excited, it reappeared on the next day, or the day after that; this reappearance, however, was but temporary. At other times, after being suspended for the thirty or forty hours following the vomiting, it reappeared, and continued.

In four of our cases the diarrhœa appeared after the employment of an emetic. After having existed at the commencement of the disease, and then ceased spontaneously, it appeared again after the employment of the same medicine in two of our cases.

Much importance has been attached, in latter times, to those cases in which the functional disturbances of the stomach come to be complicated with fever after the administration of an emetic; but, prejudiced as persons were with respect to the injurious effects of emetics, they overlooked other remarkable cases in which this fever disappeared, on the contrary, after a vomit. This, however, we witnessed in several of our cases. Among the subjects of these cases some had profuse sweats after having vomited, whilst some did not sweat. In all the fever ceased the very day, or the day after, the emetic was taken.

In connexion with these cases, which point out the beneficial influence of an emetic over fever, we could refer to others in which the fever continued or increased after vomiting had been excited. In some of these cases there was at first an apparent amendment on the very day when the emetic was given; but the next day the fever resumed all its intensity. In one of our cases it was

after the administration of two grains of tartar emetic that exacerbations appeared resembling those of pernicious fever.

Whenever severe nervous symptoms existed, we did not find them to be improved by the employment of emetics or purgatives. Sometimes they merely continued, sometimes they increased immediately after the use of these means.

From the different facts now stated, what conclusion shall we deduce? This — that, notwithstanding the strange abuse of evacuants, their employment should not be generally proscribed, and that there are cases in which their utility cannot be called in question. If there be a fact in medicine, of whichwe are convinced, it is the sudden improvement which occasionally follows the use of an emetic or purgative in persons who distinctly present the symptoms of that affection called gastric or intestinal derangement (*embarras*). Another fact, of which we feel no less convinced, is, that the fever, which may accompany these symptoms, often disappears with the latter after the patient has been vomited. Towards the end of the summer of 1829, which was occasionally rather cold and moist, we found frequent opportunities of employing tartar emetic with the greatest advantage in cases similar to those just mentioned. We shall confine ourselves to the detail of the two following cases, which bear considerable resemblance to others already reported.

A middle-aged woman was received into the hospital Cochin during the month of September, 1829. She complained of violent headach, of pain in the joints, and in different parts of the chest. The countenance was expressive of great prostration, and the red colour of the cheeks contrasted with the yellow tint around the eyes, the alæ nasi, and the lips. The tongue was covered with a thick yellow coat; the patient was distressed with constant nausea; the epigastrium was free from pain; the stools were scanty; pulse frequent, and skin hot. This state continued for four days; the patient became weak; there was a tendency to the adynamic state; at this time two grains of tartar emetic were given, and she was frequently vomited. On the day after we found the patient, for the first time, free from fever; the nausea no longer existed; the pains were no longer felt; the tongue still remained a little loaded. On the following days she was very well.

A hotel-keeper came under our care with all the symptoms of what is called bilious fever; supra-orbital headach of the most distressing character; pains of the joints and towards the loins; incessant inclination to vomit, and from time to time some vomiting; tongue white, broad and free from redness; intolerably bitter taste in the mouth; feeling of constriction at the epigastrium; constipation; pulse frequent and hard; skin hot, and every evening a febrile accession, during which the headach was very much increased; the accession of fever terminated every morning in a very profuse sweat. We had him bled from the arm; no improvement followed. The application of leeches to the anus was equally ineffectual. Six days passed on in this way, and the state of the patient was not improved; the fever was constantly very high. The patient stated, that some years before he had had a similar attack, and that he got quite well after being vomited. He importuned us to try the same means. We accordingly gave him two grains of tartar emetic. He vomited a great quantity of green bile. For the rest of the day he no longer felt any nausea; in the evening the febrile accession did not return: in the morning he was free from fever; and the day after was convalescent.*

Experience, then, does not allow us to doubt that, in certain morbid states, with or without fever, which are readily recognised by well-marked symptoms,

* We have, subsequently to this, met with several other such cases, and we feel satisfied that emeto-cathartics may be given with the greatest advantage in cases similar to the above.

emetics may be of real advantage. Their efficacy in these cases seems to us one of the strongest arguments against the doctrine which explains every functional disturbance of the stomach by gastric irritation, and every continued fever by gastro-enteritis. The old theories, according to which the success of emetics was accounted for by supposing that these agents freed the stomach from matter accumulated in it, appear to us equally untenable. Several facts already mentioned, seem to us clearly to prove that the existence of these accumulations is, at least, very hypothetical; we have found no trace of such in the stomach of individuals, who, up to the moment of their death, had presented that group of symptoms, which Stoll, for instance, would have explained by the presence of accumulations (*saburræ*) in the stomach.

Perhaps we should better appreciate the advantages of emetics, if, instead of considering only their local action on the stomach, we were to reflect on the powerful impressions made by them on several other organs, and particularly on several secreting organs; on the organs of the circulation and respiration, and on the nervous centres. An emetic might then, in our view of the matter, serve as a powerful stimulant, which, simultaneously changing the quality of several vital acts, might produce in the system a sudden modification, which, according to the cases pointed out by experience, might itself prove salutary or injurious.

SECTION IV.

TREATMENT BY TONICS AND STIMULANTS.

Forty of our patients were put under this treatment. Quinquina in every form; wine, camphor, musk, assafœtida, acetate of ammonia, æther, different aromatic distilled waters, were the different substances given to them. Several of them also had some beef-tea every day.

Of these forty patients so treated, there were twenty-six in whom the disease became worse, and terminated fatally. Among these patients there were some in whom, during the first days on which tonics were employed, an improvement was observed, which was, however, but temporary.

With respect to the other fourteen, their state was improved after they commenced the use of tonics; and the disease terminated favourably. But with reference to the share which the stimulant treatment might have on the cure, these fourteen persons must be divided into two classes: in the first we shall place those in whom a rapid improvement was observed from the time that tonics were given. Under the second class we include those who, very different from the former, experienced an improvement only gradually, as if the simple expectant method had been adopted. If it be admitted that the individuals of the first class owed the improvement which they felt to tonics, there can be no longer any doubt with respect to the individuals of the second class.

Thus in forty persons treated by tonics, we find twenty-six in whom the disease became worse, during the employment of these medicines; eleven on the contrary, in whom it was improved during the use of these same tonics, and only three in whom the improvement followed so closely on the commencement of the use of stimulants, that it seems reasonable to conclude that it was to this treatment the amendment was owing.

In the individuals treated with tonics, the different functional disturbances are in general aggravated, or improved, according as the disease itself is so modified. Thus with respect to the febrile disturbance, and nervous symptoms, we would only repeat what has been already stated in the preceding paragraphs.

The tongue returned to its natural state during the employment of tonics, in

nine of our patients. This return was rapid in some; slow and progressive in the greater number. Whilst presenting its natural appearance, when we began to give tonics, it continued to present this appearance during their employment in four cases.

It became dry, red or black during the use of quinquina, and other tonics, or stimulant medicines, in fifteen patients. It presented remarkable alternations of dryness and moisture, of redness and paleness, in three other individuals. Dry, red, brown, or black, when tonics began to be given; it continued so in nine of the patients placed under our care. During the use of tonics, the diarrhœa ceased in three cases; it continued in seventeen, and came on in four cases.

During this same treatment meteorism ceased in five cases, it increased very much in one instance, and it continued in five cases, and made its appearance in three other cases, at the same time that the patients were submitted to a stimulant treatment.

We do not pretend to say that the recapitulation just given, accurately represents the opinion of medical men, with respect to the degree of advantage to be derived from tonics in the diseases treated of in this part of the work; we are only desirous that our observation should invite the attention of practitioners, and induce them to make new researches in reference to this subject: for we do not consider such a question finally settled; and certainly it is not by the mere data of pathological anatomy, that we can expect to solve it. Thus we see in another part of this work pneumonia treated with stimulants. Here it is no longer, from the sole consideration of the local lesion, that the indications are derived; the same may be said of a great number of other cases. Whatever importance, then, we may have attached, in *fevers*, to inflammation of the digestive passages, we cannot admit, that, in all cases, therapeutics should be entirely subordinate to this inflammation. This view of the matter was taken up, several years since, by M. Bouillaud, when, whilst he laid it down as certain, that the majority of what are called adynamic fevers, had their origin in an inflammatory state of the intestine, he advised the employment of chlorurets, to combat the consecutive changes which he admitted to exist in the blood. We have several times employed these chlorurets of late, and we must say that, in more than one case of bad typhoid fever, their employment has coincided, in the most striking manner, with a general improvement of the symptoms, and has been attended with the recovery of the patient.*

SECTION II.

DISEASES OF THE DIGESTIVE TUBE, IN WHICH THE LOCAL SYMPTOMS EXIST WITHOUT ANY OTHER SYMPTOMS, OR IN WHICH THEY WERE PREDOMINANT.

The cases reported in the first section presented to us several forms of gastro-intestinal inflammations, in which the general symptoms, either by their number or intensity, influence very much the local symptoms. In the present

* The way in which we administered the chlorurets is as follows: we gave in each pot of ptisan from fifteen to twenty drops of chloruret of soda; we put half of this quantity into the draughts; we also gave from twenty-eight to thirty drops in the form of lavement; and we sprinkled this same liquid over the cataplasms with which we covered the abdomen. This is also the way in which the chlorurets have been administered by Professor Chomel, who was one of the first to employ them in the treatment of typhoid fevers.

section this will no longer be so, and the cases which it contains are such that the seat of the disease is readily and clearly indicated by the seat of the symptoms.

CHAPTER I.

OBSERVATIONS ON ACUTE GASTRITIS.

For some years after the publication of M. Broussais's work on inflammation of the digestive passages, acute gastritis was considered by many physicians as a very common affection, and a number of acute diseases, widely differing from one another, were referred to it. However, more exact observation soon pointed out that acute inflammation of the stomach was not an affection so frequently met, and that in many cases its existence had been supposed gratuitously. This was the truth: but men did not keep to it — a reaction in a contrary direction soon took place; and some medical men went so far as to say, that acute gastritis, with the exception of that produced by corrosive poisons, was an inflammation so uncommon, that they had not as yet met with a single instance of it. However, in the former part of this work we have cited some cases in which the febrile disturbance and the symptoms of reaction towards the brain could be explained only by the inflammation, of which very evident traces were found in the stomach. The following cases, whilst they will further prove the real existence of this inflammation, will afford us an opportunity of studying it in its most important forms.

Case 1.—Vomiting; pain in the epigastrium; tongue at first white, then red and dry, and afterwards covered with aphthous eruption—Continued fever—Death after thirty days' illness—Gastric mucous membrane red and friable.

A woman, twenty-seven years of age, who had always enjoyed good health, suffered in the commencement of November, 1830, some domestic annoyances. From this time her digestion, which till then was good, became disturbed; she felt an acute pain in the epigastrium, and soon after every thing she swallowed was rejected. Five days passed on this way; after this she took to bed, and then entered the Maison Royale de Santé. The following was her state at this time: —

Her countenance, which was generally pale, presented on each cheek a deep red patch; a black circle surrounded her eyes; she was very feeble, and spoke with a very faint voice. Within the last twenty-four hours she had vomited several times nearly a pint of bilious matter, which, during its passage, was intolerably bitter. All the drinks which she strove to take were immediately rejected. She constantly applied the hand to the epigastrium, and complained of a very acute pain in this part; the remainder of the abdomen was free from pain. There had been no stools for the last four days; the tongue was covered with a white coat, presenting beneath it a great number of red points, most apparent towards the anterior extremity of the organ. The patient complained of being tormented with severe thirst, which she did not venture to satisfy; the distress which accompanied each vomiting made her dread very much the return of it. The pulse was more than 112 per minute, and in the same space of time twenty-eight respirations were counted. The skin was hot and dry.

We considered this woman as labouring under acute inflammation of the stomach. We directed forty leeches to be applied over the epigastrium, the bleeding of which was encouraged by means of a warm bath. A weak infusion of mallow flowers was the only drink allowed.

On the following day there were some amendment; the vomiting had not ceased, but it was less frequent and less copious; the patient had been able to retain a little of the drink what she had taken; she suffered less in the pit of the stomach; still the fever continued.

During the eight hours following the state of the patient became alternately better and worse. But she never passed twenty-four hours without vomiting, sometimes bile, sometimes whitish mucus; occasionally, after efforts which lasted for more than half an hour, she threw up nothing but a liquid resembling white of egg. The pulse retained its frequency, and the epigastric pain always continued with variable intensity; the tongue retained the same appearance. We scarcely had been able to obtain a single stool, during all this time, by repeated lavements. Thirty leeches were a second time applied to the epigastrium, and several baths were given. After this time we tried the use of ice, but she could not bear it; Seltzer water, mixed with gum water, was not more successful; we were also obliged to give up different aromatic infusions, which we tried; she soon refused every thing, and would not consent to take any liquid but a little cold water, that seemed to agree best with her.

Still the state of debility went on increasing: she wasted away with frightful rapidity; towards the twentieth day the skin ceased to feel hot, but the pulse still retained its frequency. Towards this period we applied to the epigastrium a blister, on the surface of which we put some hydrochlorate of morphine. The vomiting underwent no change from this application. Towards the twenty-sixth day the tongue lost the white coat with which it was covered, it became red and smooth over its entire surface. Towards the thirty-fourth day the tongue began to become covered with small white points, which soon become visible also on the inner surface of the cheeks and gums. These points, increasing in number, soon became converted into broad patches, which covered the tongue, like a confluent aphthous eruption, as also the inside of the mouth and the velum palati. The patient died towards the fortieth day. The vomiting had ceased three or four days before death.

Post-mortem.—Beneath the whitish layer which covered the tongue and cheeks, the mucous membrane of these parts was intensely red. The pharynx and œsophagus were in a healthy state. The stomach, which was strongly contracted, was nearly the size of the transverse colon. Its inner surface, over nearly its entire extent, was of a brownish red. This colour had its exclusive seat in the mucous membrane, which had become in every part very thick, and was at the same time very friable. On its free surface there was discovered a multitude of small red or blackish points, which seemed to have their principal seat in the villi; however, beneath these the body of the mucous membrane was red, and as it were penetrated with blood; in no part could this membrane be detached, it gave way under the forceps, and in several points it resembled a pulp without any consistence. Such was the state of the mucous membrane of nearly the entire stomach, except near the pylorus, where it resumed its normal consistence, and where its colour was merely greyish. The remainder of the digestive tube was pale; neither patches nor isolated follicles were discovered in it.

The other organs presented nothing remarkable.

Here is a case wherein acute inflammation of the stomach presented itself free from any complication; and wherein, consequently, all the symptoms observed during life must be referred to it.

These symptoms were very marked; they pointed out, beyond all manner of doubt, both the seat and nature of the disease. During its continuance the circulation was disturbed; but that was the only sympathetic phenomenon which occurred; at first there was acceleration of the pulse and heat of skin, at one and the same time; but at a later period, according as the general debility in-

creased, the skin returned to its ordinary temperature, and the disturbance of the circulation was no longer announced except by the frequency of the pulse. Here the febrile disturbance was evidently dependent on the morbid process going on in the stomach.

The different appearances presented by the tongue during the progress of the disease are deserving of attention. The thick white coat which covered it at first, might have made one mistake the real nature of the affection; but beneath this coat the tongue was intensely red ; it was far from being pale at its circumference, and this was not one of those cases where the white coating of the tongue could be combated by an emetic. However, according as the disease progressed, the tongue threw off the coat which covered it, and assumed a uniform red appearance. At a later period, again, it was attacked by an eruption, resembling that of aphthæ (*muguet*), and that was the prelude to the fatal termination. Thus, the different changes which the tongue underwent were directly proportioned to the constantly increasing severity of the disease; and however different the appearances were which this organ presented at different periods, they were all connected with an inflammatory state of the stomach.

We seldom see vomiting continue so long, and in so uniform a manner, as in this case. All the therapeutic means opposed to it were of no avail; they were not more effectual against this symptom, than against the disease itself which progressed and increased without ceasing, notwithstanding the active antiphlogistic treatment employed from its very first appearance.

Case 2.—Vomiting; tongue red and dry; pain of epigastrium—Fever—Three weeks' illness—Redness and softening of the mucous membrane of the stomach.

A woman, seventy-four years of age, entered the Pitié, October 25, 1832. Some days before her admission this woman had been seized with an acute pain in the pit of the stomach, and with vomiting. These symptoms came on without any known cause. When we saw her she was very weak. The tongue presented a uniform red colour, and it was very smooth on its surface. The patient, who was distressed with intense thirst, vomited all the drink she took; she complained of an intense pain in the epigastrium, which was increased by pressure ; the rest of the abdomen was free from pain, and not tympanitic; no stool had taken place within the last three days; there was a slight cough; pulse was frequent, and skin hot. Twenty-five leeches were applied to the pit of the stomach. Gum water was ordered her.

During the following days the vomiting still continued; not only her drink was rejected, but occasionally she vomited, from time to time, with great effort and considerable distress, a small quantity of bile, sometimes yellow, and sometimes green. The vomiting of this bile was preceded by a sensation of burning at the xiphoid cartilage, and at the time when it was vomited the same sensation extended all along the œsophagus. The pulse, which was accelerated from the commencement, continually became smaller; emaciation and debility made rapid progress, and she died on the 11th of November, without presenting any new symptom. For the last few days before death, the tongue, which was intensely red, became very dry; the nausea and vomiting continued to the very last.

Post-mortem.—Nothing remarkable in the pharynx or œsophagus. The stomach was strongly contracted, particularly towards the pyloric portion. A viscid, thready mucus, of a yellowish white colour, and very adherent to its parietes, lined its inner surface. Beneath this mucus, which was not removed without some difficulty, we found the mucous membrane, of a dark red colour, over the entire surface of the great cul-de-sac, and over all the posterior surface from the cardia to the pylorus. This redness penetrated the entire substance of the membrane, which had lost its consistence in every part where it was red;

in some points it was merely a sort of pulp, which could no longer be raised with the forceps. Towards the anterior surface the mucous membrane presented a slate-coloured tint, without its consistence being much changed; near the pylorus some mamillation was observed. The different tissues subjacent to the mucous membrane were in the normal state, and there was a striking contrast between the perfect whiteness of the submucous cellular tissue, and the intense redness of the membrane which covered it. The small intestine contained in its upper part a yellowish liquid, which became reddish inferiorly. It presented a considerable injection in several points. The large intestine was pale in general. The liver, which was of the ordinary size, was pale, and readily torn. The gall-bladder was distended with a great quantity of yellow bile, and in this was a calculus of an oval form, crystallized internally, the size of an almond. Each ovary was changed into a multilocular tumour, about the size of an egg. The cavity of the uterus was filled with a reddish liquid. Some calcareous concretions, surrounded by a black and indurated parenchyma, were discovered in the upper lobe of each lung. There were also some ossifications of the aorta.

The only organ in which we found any alteration after death was the stomach, and it was also to a gastritis that we had referred all the symptoms during life. These were nearly the same as in the first case; the vomiting continued with equal obstinacy, though not so profuse; the epigastric pain was equally intense; the tongue was red and dry from the commencement; it began by becoming covered with a white coat, as in the preceding case, but no trace of aphthæ appeared towards the termination, as we had observed in the former instance. In both the febrile disturbance was the same, and in both patients death was equally the consequence of the progressive debility into which the acute inflammation of the stomach had plunged them. It came on more promptly in the subject of the second case, who was much older than the first.

In the following case we shall again see acute inflammation terminate fatally, after having lasted from thirty-six to forty days; the anatomical lesion will still be the same, but there will be some difference in the symptoms.

Case 3.—Rheumatic affection at first; after some days, sudden disappearance of the articular pains, succeeded by intense pain in the epigastrium—Continuance of the latter, and of fever, for forty days—Vomiting only during the first few days; delirium towards the termination—Tongue at first white, then red and dry, and subsequently diphtherite—Redness and softening of the mucous membrane of the stomach.

A woman, fifty-five years of age, of a tolerably good constitution, and subject to indigestion, was in good health when news were brought to her that one of her children had received a serious injury in one of the streets of Paris. She suppressed her grief, flew to its assistance, and for the remainder of the day did not appear ill; but she could not sleep the entire night; and on the next morning she was attacked with a violent fit of shivering, which was succeeded by burning heat. The latter continued for the entire day, and towards night several of the joints became swollen and painful. Three or four days passed on in this way, during which she presented all the symptoms of acute articular rheumatism, with fever. After this time, and without any active treatment having been employed, the swelling and pain of the joints ceased suddenly, but at the same time the patient felt an acute dragging pain in the pit of the stomach, for which leeches were applied to the epigastrium. The pain became less, but it did not disappear; for the five or six days following the patient kept to her bed, and continued to suffer from the pain in the stomach. She then entered the Pitié in the beginning of February, 1832. She was then twelve days ill. She had intense fever, and complained of pain in the epigastrium, which was increased by pressure; had distressing thirst, complete loss of ap-

petite, but neither nausea nor vomiting; she had not been more than once or twice at stool for the last twelve days. The tongue, which was covered with a thick white coat, presented at the same time a number of bright red points at its apex and edges.

It appeared to us that the stomach was the original seat of the fever and the other symptoms. We ordered thirty leeches to the epigastrium; they bled very much. On the next day, however, there was no improvement. Pulse 120, skin burning hot, and the epigastric pain still continued. (Gum water, diet, lavement of marshmallow water.)

During the twelve following days the state of the patient remained the same. After this she took a little broth and some dried prunes. On the day after this, light food was given. We had no reason to feel pleased at having yielded to the importunities of the patient, who pressed us to allow her food, not that she felt hungry, but because she thought that food would relieve the debility, which was every day increasing. The tongue, which till then had remained white and moist, threw off the coat with which it was covered; it was now become red and smooth; the thirst was as intense as on the preceding days, and the epigastric pain was now become more acute. The patient was now so weak, that at first we hesitated whether we should recur to another bleeding. We tried it, however, and twelve leeches were applied to the epigastrium.

It did not appear to us that either good or harm resulted from this measure. On the day after we found the tongue equally red and dry; the frequency of the pulse was still the same. Nothing new was observed for the three or four days following. At the end of this time another symptom appeared; the patient began to vomit her drink, which came up mixed with a small quantity of yellowish bile; then the tongue, and all the inside of the mouth, became covered with white pellicles, which extended to the inner surface of the cheeks like broad pseudo-membranes, between which the mucous membrane was observed to be red and bleeding. This diphtheritic eruption coincided with increased debility; the features were altered; the pulse still continued frequent; some vomiting took place from time to time; wandering delirium came on; and death took place about forty-eight hours after her intellects began to be disturbed. Up to the last moment the stools were very scanty.

Post-mortem. Pharynx and œsophagus healthy; mucous membrane of the stomach, on its two aspects, of a bright red colour, and softened, and also towards the great cul-de-sac; greyish mamillary appearance of this membrane towards the pylorus; slate-coloured tint of the duodenum, owing to the blackish colour of its villi; the same tint was found on the upper third of the jejunum. Nothing else remarkable.

The onset of this disease is well deserving of attention. The strong mental excitement, which may be considered as the occasional cause of its development did not at first act on the stomach; articular rheumatism declared itself, accompanied by intense fever. To judge from its acute form, it was probable that it would be of considerable duration, and that the tumefied and painful joints would return but slowly to their normal state. Such, however, was not the case. All at once, and before the usual time, the rheumatism completely disappeared; in a few hours all the joints once more became free, and at the same time, as if by a sort of metastasis, an acute pain developed itself in the stomach, and acute gastritis took the place of rheumatism. But, very different from the disease which it succeeded, its course was violent, it became more and more intense. The tongue presented, during its progress, the same changes as those noticed in one of the preceding cases. At first it was covered with a whitish coat, with red points at its edges, then with a uniform red colour, and ultimately became lined with false membranes, which gradually occupied the entire mouth.

Whilst in the preceding cases the vomiting had been one of the prevailing symptoms, had commenced with the disease, and had continued during its course, here, on the contrary, it was only at the latter period, and nearly at the some time as the diphtherite, that the vomiting appeared. This symptom, then, does not necessarily exist in every acute inflammation of the stomach, and when it does appear, it may, as in the present case, not accompany it in all its course. It is in general a very bad sign when it comes on at an advanced stage of the disease.

In this case, as in the two preceding cases, the epigastrium was the seat of an acute pain, which continued during the entire course of the disease. The gastric mucous membrane is not then as insensible as has been stated by some persons. Still, in consequence of the endless varieties of the sensibility of each individual, this membrane may be inflamed in a very high degree without the patient's experiencing any considerable pain in the epigastrium. We shall presently see an instance of this. There is no symptom necessarily connected with the disease which it indicates in very many cases, and there may be acute gastritis without vomiting and without pain, as there are instances of pleuritis without stitch in the side, and pneumonia without the rust-coloured expectoration.

This was the first time we observed any delirium, but it came on only towards the termination of the disease, at that period when all the vital acts become deteriorated, when the disturbance of the intellect so frequently precedes death by a few hours.

It may be well to observe, that, up to the time of the disappearance of the articular rheumatism, no active treatment was employed; and thus this affection disappeared altogether spontaneously, and that in so sudden and unexpected a manner, and passed, by a sort of *metastasis*, to the stomach.

We had an opportunity of meeting, in private practice, a case exactly similar to that just now reported. A lady, about sixty years old, having had all her life a stomach the susceptibility of which rendered it imperative on her to observe strict regimen, became very much exhausted in attending on one of her children who was dangerously ill. On a sudden she was attacked with fever and well-marked articular rheumatism. The delicate constitution of the patient, the debilitating causes which had acted on her, the mental distress which still annoyed her, induced us not to abstract any blood. This rheumatism continued for some days, then it disappeared all at once, and at the same time the epigastrium became painful, the tongue red, and the fever continued for the fifty days following. We observed precisely the same symptoms as those detailed in the preceding case, and at the end of this time she died. The body was not examined.

Case 4.—Severe cholera—During convalescence a reappearance of the vomiting; redness and dryness of the tongue; acceleration of the pulse; redness and softening of the mucous membrane of the stomach.

A young man, twenty-three years of age, entered the Pitié towards the middle of November, 1832, with all the symptoms of violent cholera; cyanosis existed to a very high degree, and the pulse at the wrist could scarcely be felt. (Ice and Seltzer water internally, narcotics in the form of lavement, rubefacients to the skin.) Such were the only means employed by us. After being forty-eight hours in the Pitié, all the bad symptoms ceased, and the person might be considered as bordering on convalescence. One day he obtained more food than we allowed; this brought on a fatal relapse. The day after this occurrence we found the patient in the following state:—

The eyes were again dull and sunk as when he had cholera; the tongue presented nothing particular; he was distressed with burning thirst; he had

beside him a basin filled with the matters which he had vomited; the latter consisted in a great measure of ill-digested food; there was no pain in the epigastrium, nor in the rest of the abdomen; some liquid stools had taken place. The pulse was frequent, without the skin being hot. We trusted that it would be but an attack of mere indigestion, and we waited till the next day.

On the next day the state of the patient appeared more alarming. The vomiting, which had continued all the day, consisted of a greenish bile, not considerable in quantity; the tongue was red and dry, and still the epigastrium and remainder of the abdomen were free from pain; neither were there any alvine evacuations. Pulse 130, and the skin was burning hot. We had no doubt of the existence of gastritis, though the stomach was not the seat of any pain. We immediately prescribed thirty leeches to the epigastrium.

During the twenty-five days following the patient remained in a state of continued fever, with his tongue constantly red and dry. He had burning thirst, frequent nausea, and from time to time he vomited either a thready mucus, somewhat resembling the white of egg, or a yellow or greenish bile. The abdomen, including the epigastrium, was free from pain in all its points. There was obstinate constipation. The patient arrived rapidly at the last stage of marasmus; a large eschar formed on the sacrum; and he died, as if exhausted, without a struggle, and with his intellects perfect.

Post-mortem.—The stomach was strongly contracted on itself over its entire extent. It contained a small quantity of yellowish bile, and also a large lumbricus. Its parietes were lined by a layer of whitish mucus of a purulent appearance, and not viscid. Numerous bands, which interlaced with each other, appeared on its lower surface. The latter presented an extraordinary appearance. On a brownish ground there appeared a great number of bright red spots, which gave the mucous membrane a sort of spotted appearance. These spots, which were, on an average, about the size of a centime, consisted of a group of very fine curiously injected vessels; there were sixty of these at least scattered over the inner surface of the stomach. Where these spots existed the mucous membrane was soft, and, as it were, pulpy; between them it was thickened, and might be raised in large shreds. The valvulæ of the duodenum were considerably injected, as well as those of the commencement of the jejunum. On the remainder of the small intestine we found nothing else to notice, except a considerable number of Brunner's follicles, which were scattered over the lower third. These follicles were white, and not much developed. The large intestine was white, and contained some fæces.

In the other abdominal viscera we observed nothing else save a considerable enlargement of the spleen, the tissue of which was at the same time softened, and a greater friability of the parenchyma of the liver than was consistent with its normal state. This parenchyma was also of a pale red colour.

In the cranium and chest there was nothing remarkable, except one of the lymphatic glands, which was changed into a bony substance, and formed a slight tumour before the arch of the aorta.

During the epidemic cholera in Paris, in the summer of 1832, we saw many cases similar to the preceding. A great many persons, after having had different degrees of cholera, did not recover perfectly at once; they remained for some time with difficult digestion, more or less acute pain in the epigastrium; they also had nausea and vomiting. In several these symptoms ceased by little and little, and the health returned; but in others the stomach became more and more diseased; the vomiting became more frequent; a period came on when all liquids were rejected by vomiting; very often there were frequent vomitings of greenish bile every day; the tongue seldom remained in its natural state; being at first white and moist, it afterwards became dry. In all the cases which we saw there was continued febrile disturbance. The individuals fell

rapidly into a state of marasmus, and they died at an interval of time which to us seemed to vary from between twenty-five days to three months. In those who died with this group of symptoms, and whose bodies were examined after death, we found traces of inflammation in the stomach.* In those who died at a period not remote from the commencement of the disease, we found the gastric mucous membrane red and softened; in those who did not die till a later period, this membrane sometimes presented the same aspect; sometimes it presented a brown or slate-coloured tint, and its tissue was thickened, and, as it were, indurated.

In such cases we have seen the most active antiphlogistic treatment completely fail, but still we feel convinced that it was the treatment on which most dependence could be placed, and we have not seen the other treatment employed, either by ourselves or by other practitioners, succeed better.

Case 5.—Symptoms of acute gastritis—Death on the nineteenth day—Bright redness on the inner surface of the stomach, with softening of all the substance of its parietes.

A young man, twenty-one years old, in the habitual enjoyment of good health, entered the Charité on March 22d. Ten days previously he had lost all appetite. He was then seized with an acute pain in the epigastrium, and with nausea and vomiting. When he was placed under our care he had no longer any vomiting, but the epigastrium was painful on pressure; the tongue, covered with a thick whitish coat at its centre, was of a bright red colour at its apex and edges. He complained of a burning thirst, and scarcely ventured to satisfy it, because the taking of drink increased the epigastric pains, and excited nausea. The pulse was very frequent, and the skin hot. He was bled to sixteen ounces.

He was then in the eleventh day of the disease. From the eleventh to the twelfth day there was incessant vomiting. On the tenth day the features of the patient were as much altered as in cases of the most acute peritonitis; he was in a state of indescribable distress; his voice was quite gone, as in cholera; the pulse constantly remained very frequent, but the heat of skin was gone. A large blister was placed on the epigastrium. On the seventeenth day the vomiting continued; it was not large in quantity, but half and hour did not pass without the patient throwing up some mouthfuls of greenish bile. On the eighteenth day he was delirious. On the nineteenth countenance hippocratic, and extreme exhaustion. He died on the night of the nineteenth.

Post-mortem. On raising the stomach for the purpose of examining it, we were astonished at seeing its parietes give way under our fingers without the slightest force being used. Over all the left portion of this viscus, its tunics, from the peritoneal to the mucous, had no longer any consistence: they gave way under the finger like a sort of pulp. Wherever this softening existed, the parietes of the stomach were of a dark red colour, and, as it were, ecchymosed. This redness was very considerable on the inner surface of the organ. Near the pylorus the parietes of the stomach resumed their natural consistence, and in this part the mucous membrane had a greyish tint. Nothing remarkable in any other part.

This case differs from the four preceding it with respect to the nature of the alteration of which the stomach was the seat. The inflammation here was no longer confined to the mucous membrane; it extended also to all the other tunics; and the result was, a softening of the parietes of the stomach, resembling that observed by M. Cruveilhier in children, and described by him under the name of gelatiniform softening; only, here the softening coincided with a very intense hyperæmia. The gastric inflammation was announced in this case

* We shall presently cite cases where, with symptoms nearly similar, we found the stomach exempt from all appreciable lesion after death.

during life by very well marked symptoms, similar to those pointed out in the preceding cases.

We met a case of softening of the stomach entirely similar to that just described, in a young child to which sulphuret of potash had been given for the cure of croup. The disease yielded; but the child did not ultimately recover its health. He died in a little time, after having presented continual vomiting as a prevailing symptom. The parietes of the stomach, through their entire extent, presented in fact nothing but a reddish pulp, which crumbled beneath the finger.

Case 6.—Constant vomiting for forty days—Ulceration of the stomach.—Psoitis.

A negress, thirty years of age, was in the habitual enjoyment of good health, when, forty days before entering the hospital Pitié, she was seized with pains in the epigastrium, which were never very acute, and with vomiting, which continued up to the time of her admission. Such was the only information which we could obtain regarding the previous history of the case.

When she came under our care (March 10th, 1832) she had reached the last stage of marasmus and debility; she had fever; her tongue was red and dry; the vomiting had lessened; she would take nothing but a few spoonsful of a solution of syrup of gum in water. She complained of no pain in the abdomen; she continued lying on her back. This woman remained for ten days in the Pitié, and then died, having pined away gradually. Towards the termination of life she ceased to vomit; her tongue continued red and dry to the last, and her pulse also continued frequent.

Post-mortem. The internal surface of the stomach was white through its entire extent, and the mucous membrane was of the normal consistence. To the right, and in a line with the cardiac orifice, at the distance of about two inches from this orifice there was an oblong ulcer, about six lines in length and three in breadth; on the edges of this ulcer the mucous membrane was not thickened, and the bottom of it was pale.

The remainder of the intestine was pale as the stomach. To the extent of a foot above the ileo-cæcal valve there were observed some of Peyer's patches, recognisable only by their black points. They formed no projection above the level of the intestinal surface. The colon was studded with a considerable number of Brunner's follicles, white as the mucous membrane which surrounded them. The liver was pale and soft; the spleen was small and soft. One of the calices of the left kidney was filled with pus. In the place of the psoas muscle of the left side there existed an immense collection of pus, in which the bodies of several of the vertebræ, divested of their periosteum, were bathed.

This is unquestionably a very remarkable case with respect both to the symptoms and to the morbid changes which occasioned them. An ulcer of trifling extent, which occupied but a few lines in the stomach, and no other alteration of this organ, not even any injected vessel through its entire extent; no change in the consistence of its mucous membrane; and yet, observe how severe the symptoms were with respect to the stomach; is there not reason to be astonished at the long-continued and obstinate vomiting, when we consider that ulcerations of the stomach, though of vast extent, and accompanied with many other organic lesions, oftentimes do not give rise to any vomiting? Nor can we avoid remarking the coincidence between the redness and dryness of the tongue with such a state of the stomach.

No doubt the profuse suppuration of the psoas muscle had a great share in the production of some of the symptoms; but though we may refer the fever and emaciation partly to this cause, we can scarcely allow that this suppuration was the cause of the vomiting.

What was the origin of the purulent matter found in one of the calices? Had

it been secreted there? But no trace of inflammation was found around it. Was it conveyed there by absorption? This would not be the first time we found pus in the urine without any vestige of inflammation in the kidneys, ureters, or bladder, at the same time that there was a purulent collection in other points of the body.

Case 7.—Numerous ulcerations on the inner surface of the stomach—Diphtheritic eruption over the entire buccal mucous membrane—Pulmonary tubercles.

A woman, twenty-six years of age, entered the Pitié, during the summer of 1832, with all the signs of pulmonary phthisis in a far advanced stage. During the last twenty days of its existence, the tongue, gums, lips, and cheeks, were covered with a whitish layer, resembling the eruption of aphthæ (*muguet*). The entire mouth was at the same time the seat of acute pain; there was a complete loss of appetite, burning thirst; the epigastrium was habitually painful. From time to time the patient had some nausea, but never any vomiting. She died on the 29th of June.

Post-mortem. — The internal surface of the stomach was lined with a thick layer of brownish mucus, which closely adhered to the mucous membrane; the latter, through its entire extent, actually presented the appearance of a sieve, in consequence of a multitude of small ulcerations, all of the same form and the same size; they were exactly rounded, each being scarcely the size of a centime. The bottom of these was formed by the submucous cellular tissue, which still retained its natural whiteness and thickness. Beside these ulcerations there were observed some depressions, at the bottom of which the mucous membrane was still found reduced to a very fine web, and covered by a blackish matter, which seemed to be the detritus of the most superficial plane of the mucous membrane. Between these ulcerations and these vacuities, the mucous membrane retained its natural thickness and consistence; it was every where white, except towards the small curvature, to the extent of a five-franc piece, where some bright red points were observed.

The duodenum presented, on its inner surface, three black spots, which were formed of mucous membrane thickened, and as it were infiltrated, with a black substance, which towards the edges of each spot assumed a red tint. A little below these three spots, towards the union of the second and third curve of the duodenum, an ulcer was observed, which was still covered by some debris of the black substance just mentioned. Numerous ulcerations, through which tubercles were observed, were remarked on the lower third of the small intestine, in the cæcum, and at the commencement of the colon.

A brownish substance lined the œsophagus. The internal surface of this tube presented some longitudinal bands, where the epithelium was wanting; it was here principally, that the black matter was accumulated. Tubercles and cavities in the lungs. Traces of peritonitis, with numerous tubercles amidst false membranes. Liver pale, friable, and greasing the scalpel.

We have cited this case for the express purpose of pointing out the remarkable alteration which was found in the stomach. The numerous ulcerations observed on its internal surface, had probably been formed in each of the points where they existed by these black spots, some of which were still entire in the duodenum. What was their nature? Were they so many small eschars which had succeeded a multitude of small circumscribed inflammations of the mucous membrane, similar to those of which we had an instance in the fourth case? Observe also, that in several points the mucous membrane was destroyed only in its more superficial plane, in that which is principally formed of villi; these were replaced by the black substance already mentioned.

With respect to the symptoms, there were none connected with the stomach, except an habitual pain in the epigastrium. It is not certain that the

affection of the mouth depended on the state of the stomach; and if it be true that we have more than once seen this affection develope itself in the last stage of acute or chronic gastritis, it is, on the other hand, equally true that we have found the stomach perfectly healthy in cases where the entire buccal mucous membrane had remained for a long time covered with patches of diphtherite.

Case 8.—Acute pain in the epigastrium; super-acute peritonitis—Perforation of the stomach.

A woman, thirty years of age, labouring under pulmonary phthisis, continued to eat, and to digest tolerably well, though she for a long time had been troubled with diarrhœa. One day she complained of an acute pain in the epigastrium, and she had several attacks of vomiting; at first, she threw up her food, and then a considerable quantity of thready mucus and bile. Thirty hours passed on in this way; after which the entire abdomen became tense, and very painful to the touch, all the signs of acute peritonitis appeared, and the patient died rapidly.

Post-mortem. A purulent liquid filled the cavity of the peritoneum, and membranous concretions covered the stomach and intestines. On raising the stomach we discovered on the posterior part of the great cul-de-sac, not far from the cardia, a perforation through which the index finger might be easily admitted. Around this perforation, the coats of the stomach were irregularly torn, softened, and as it were ecchymosed. All the inner surface of the great cul-de-sac was of a livid red colour, and its parietes were very friable. The mucous membrane of the stomach through the rest of its extent was very much injected.

Ulcerations at the end of the small intestines. Cavities in the lungs.

This is an instance of these solutions of continuity of the stomach, which several authors have described under the name of *spontaneous perforations*, and which seem to us to be nothing else than the result of a very acute inflammation of the stomach; all the coats are then found to be simultaneously affected, all are softened, and ulcerated at the same time, and after the lapse of a very short time the perforation may thus be completed. We have seen persons die in this way in a few hours, just as if a violent corrosive poison had been introduced into their stomach. It is remarkable enough that, in most of the cases of this kind which have been described, as also in those seen by ourselves, the perforation took place towards the great cul-de-sac.

CHAPTER II.

OBSERVATIONS ON CHRONIC GASTRITIS.

Under the generic term *chronic gastritis* we comprise several alterations which are usually described as diseases entirely of a distinct nature — such, for example, as cancer of the stomach. If, accordingly, these alterations appear to be very different from each other, with respect to their anatomical characters, they resemble each other, and become really confounded, both in regard to the symptoms which indicate their existence, and which no more appertain exclusively to the one than to the other; and also with respect to the nature of the occasional causes which give rise to them, and which are identical for all; and lastly, in reference to the treatment, which, likewise, should be the same for all. If then these different alterations should be distinguished from one another, in consideration not only of the varieties of their form and texture, but chiefly in consequence of their different degrees of curability, it is no less true, that, taken at their original seat, they all present one very important common element,

namely, the irritation which precedes them in their development. The generic term *gastritis*, under which we comprehend such variable alterations of texture, appears to us useful only in so far as it expresses the general cause, and the common connexion of these alterations. But the question is not confined to this; after having seized the point in which these alterations approximate to each other — an important point, since with it is connected the treatment — it is necessary to discover the cause of their differences. These cannot be explained either by the intensity or duration of the irritation. It is even a remarkable circumstance, that the most serious alterations of texture are often those which are preceded or accompanied by the signs of the slightest irritation. What shall we conclude from this circumstance? This, that in order to account for effects so dissimilar, we shall be forced to admit certain predisposing causes peculiar to each of them, and to acknowledge, that irritation no longer acts, except as a simple occasional cause, which of itself would be unable to produce any of the alterations. If this be so, what can be the effect of the antiphlogistic treatment? It combats only this occasional cause; but it does not at all destroy the predisposing cause, which, once the irritation is produced, gives rise, according to its nature, to the most varied lesions. Thence the frequent inefficacy of this treatment, which attacks only one of the elements of the disease, and which does not at all destroy the unknown cause, under the influence of which the irritation itself comes on. We would not consider it unreasonable to maintain that in certain cases the unusual afflux of blood by which the irritation is made manifest takes place in an organ only because there already exists in this organ a morbid predisposition, which draws more blood to it than in the natural state, so that a secretion, or a morbid nutrition, comes to be established in its tissue. We see, then, how secondary a part sanguineous congestion performs in such cases, and how, by admitting it, we are still far from having penetrated the essence of the phenomena. It would be a strange mistake to suppose, that, by it, we could account for the formation of different organic alterations, and explain their numberless varieties. Thus, when the embryo is developed, the afflux of blood into the tissue of the different organs is a condition of the formation of the latter, it is the common element which we shall find for all organic formation; but it is not this afflux of blood which determines the special nature of each organ, its chemical composition, its anatomical arrangement, and its vital properties. Thus, every secretion recognises this same afflux as a condition of its existence; but it is not by the mere increased quantity of the blood, and by the mere excitement occasioned by it in the organ which receives it, that we can explain why each gland secretes a peculiar liquid.

We entreat the reader not to lose sight of these considerations; if he reflect attentively on them, we trust he will not reproach us with having combined alterations which seem so different from each other, under the common term of *chronic gastritis;* this term we use merely as a sort of general expression, under which is ranged every organic affection of the stomach, against which the antiphlogistic treatment seems to succeed better than any other.

Let us endeavour then to show, either by anatomy, or by the study of the symptoms, how certain organic or functional lesions succeed each other, and are linked together in the stomach, the nature of which was for so long a time mistaken because their description was given separate, medical men being persuaded that each of these lesions constitute a disease in itself.

ARTICLE I.

ALTERATIONS PRODUCED IN THE STOMACH BY CHRONIC GASTRITIS.

These alterations are as numerous as they are varied; they are so much the more important to be known, inasmuch as, though it often happens that differ-

ent as they are, they give rise to the same functional disturbances, they at other times produce symptoms which vary with them. In more than one case may we explain the equally certain success of opposite modes of treatment by the difference of the lesions, of which the stomach, when in a state of chronic inflammation, has become the seat.

SECTION I.

ALTERATIONS OF THE MUCOUS MEMBRANE.

In the great majority of cases of chronic gastritis, anatomy proves the existence of varied and more or less considerable alterations in the mucous membrane of the stomach. Sometimes, however, this membrane appears to have retained its healthy state, or at least it is certain, that if it underwent any alteration, this alteration entirely escapes anatomical inspection. Thus, through its entire extent it presents the white colour which constitutes its normal state ; in every part, also, it presents its ordinary consistence ; it is neither softened nor indurated ; in no part of it, in a word, does its substance appear to be either increased, or diminished. But then we observe beneath the healthy mucous membrane, different and very striking affections of subjacent tissues, and particularly of the cellular tissue extended in the form of a dense and whitish membrane between the villous coat of the stomach and its muscular coat. Here, however, a question presents itself: though the mucous membrane may appear perfectly healthy at the time, has it always been so ? was there not a stage of the disease at which it was affected, and should we not even suppose, that, in most instances, it is in the mucous membrane that the chronic affection has commenced, of which we no longer find any traces, except in the tissues placed beneath it ? In order to solve this question, which is important, with respect to the etiology of the disease, and to its treatment, let us first interrogate analogy.

When a membranous or parenchymatous tissue is attacked with inflammation, sometimes the parts in contact with this tissue remain unaffected by the morbid process, sometimes they participate in it. If the latter be the case, it often happens that, in the tissue primarily affected, particularly if it possess a considerable share of vitality, the inflammation becomes resolved, whilst it continues and passes into the chronic state in the tissues, which were but secondarily affected ; this happens particularly when, in the latter tissues, the vital properties are less active and less energetic than in the tissue which was first attacked by inflammation. In support of these assertions very many instances present themselves. I shall cite some. A person becomes attacked with enteritis or colitis ; if he dies in the acute stage, we find only the mucous membrane affected, either merely red, or softened, or ulcerated, etc. ; if the patient does not die till after a longer time, after the inflammation has taken on a chronic form, the intestine may present three different states : — first, the inflammation may be limited solely to the mucous membrane ; secondly, simultaneously with this membrane, the tissues subjacent to it may have undergone different alterations, the result no doubt of the inflammation which has attacked them ; but sometimes the mucous membrane and the subjacent tissues seem to be almost equally diseased, sometimes the latter seem to be much more so; and cases may even present themselves in which the alteration of the mucous membrane, escaping observation at first, can be discovered only by attentive examination. Thus, this membrane, though white, is softened, and is, as it were, pulpy in several points ; at other times it presents a grey, brown, or black colour, arranged in simple points, isolated or aggregated, in round patches, sinuous lines, long bands, etc. ; at other times it presents superficial ulcerations,

white as the rest of the membrane, the bottom of which is on a level with the edges, and which are evidently progressing towards complete cicatrization. We now observe here only the remains or vestiges of the inflammation of the mucous membrane; but this white softening, this form of ulceration, proves that more intense inflammation has existed in this membrane; in fact, it is these same lesions which are found in persons who have died accidentally during convalescence from acute gastro-enteritis; that is, at a period when one should no longer find in the intestinal canal any thing but the remains of an inflammation which had been much more severe there: it is again these same forms of lesion which are found in the buccal or pharyngeal mucous membrane, when the inflammation, of which it had been the seat, is tending to resolution, when the ulcerations, with which it had been covered, are beginning to cicatrise. Thus then it seems very probable, that in the case now in question, the mucous membrane was much more seriously affected than it is now found, and that the inflammation, of which it was the seat, still continuing in the subjacent tissues, is progressing towards complete resolution; thirdly, from what has been just said, it is easy to conceive that cases may present themselves, in which these last traces of inflammation of the mucous membrane shall have completely disappeared, and where it will seem to be perfectly healthy at the same time that the tissue subjacent to it are more or less severely disorganized. Nor is this third case very uncommon.

In the pulmonary mucous membrane we may observe the same succession of phenomena. Thus in acute bronchitis the mucous membrane alone seems to be affected; in chronic bronchitis there is a degree of it in which we observe, at one and the same time, alterations, more or less varied, of the mucous membrane, and very remarkable lesions of the subjacent tissues, particularly thickening of the mucous membrane, and hypertrophy of the cartilaginous rings. Again, there is another degree of it in which the mucous membrane has recovered its healthy state, at least apparently so, and where we only perceive an alteration of the other tunics of the air tubes. Cases of this kind have been already cited.*

If these examples were not sufficient to prove that, in a great number of cases at least, the alteration of the tissues subjacent to the mucous membrane has its origin in an inflammation of these membranes, which may still continue, and which has completely disappeared, I might still cite other cases in which this succession of phenomena may be, in some measure, appreciated by the finger and the eye. Thus, after more or less intense inflammation of the conjunctiva, and when this membrane has recovered its natural whiteness and transparence, the cellular tissue which connects it to the sclerotic, may continue inflamed, infiltrated with pus, be thickened, and become the seat of various morbid changes. Thus, in persons who formerly had gonorrhœa, and in whom the urethra has become contracted in various parts, the mucous membrane has been found perfectly healthy, but the cellular tissue beneath it is thickened and indurated. It is in this way, also, that in certain individuals, who have for a long time had a chronic inflammation of part of the skin — who, for instance, have had sores on the legs — the cellular tissue subjacent to the diseased portions of the skin is also inflamed, and retains a scirrhous hardness as it were, long after all traces of inflammation have disappeared from the skin. I might again cite cases of acute or chronic inflammation of the serous or synovial membranes, in which these membranes having returned to a perfectly healthy state, there have been found in the subjacent cellular tissue traces of chronic inflammation, such as induration, scirrhous thickening, fibrous or cartilaginous transformation, etc.

Reasoning then from analogy, we might be inclined to admit, that the kind

* See the parts of this work which treat of diseases of the chest.

of law which we have proved to exist with respect to the intestinal canal, the air passages in the mucous membrane of the eye, in that of the urethra, in the skin, in the serous and synovial tissues, exists also with respect to the stomach: that is, the inflammation of which we no longer find any traces except in the tissues subjacent to the mucous membrane of this organ, primarily existed in this mucous membrane. But further, for the stomach, as for the other organs in question, this proposition may be demonstrated by direct proofs. Thus, in the mucous membrane of the stomach, as in that of the intestine, I have been able more than once to trace the gradation of the inflammation, and to ascertain, with more or less exactness, the different stages through which the mucous membrane passed, if I may so say, in order to return from the morbid to the healthy state. Thus, at the same time that different alterations of the subjacent tunics existed, I sometimes found the mucous membrane red, thickened, softened, occasionally ulcerated; sometimes these traces of inflammation of the mucous membrane were much less evident: it was, for instance, soft, but white; sometime it was very evident, from the nature of the changes, that the mucous membrane had been much more diseased than it appeared to be at the time the examination was made. In one case, for instance, which I saw at the Charité, with my friend and colleague, M. Reynaud, we found the internal surface of the stomach white through its entire extent; towards the pylorus there was evident induration of the sub-mucous cellular tissue, with hypertrophy of the muscular membrane. These tissues, as they proceeded from the pylorus, resumed their healthy appearance; then, towards the middle of the stomach, the parietes of this organ presented a new thickening, a cartilaginous sort of hardness; this induration resided solely in the different tissues subjacent to the mucous membrane; over the entire extent of this thickening, which was about equal to a five-franc piece, the mucous membrane itself no longer existed. The result of this was an ulceration so superficial, with white edges, and the bottom equally white, and on a level with the edges, that it was not perceptible at the first glance. The bottom was formed of cellular tissue considerably thickened. The individual in whom this morbid change was found, had experienced, three years before, all the symptoms of acute gastritis, such as pain in the epigastrium, with fever, vomiting, ardent thirst, etc. These symptoms gradually improved; but from this period the patient continued to labour under painful digestion, and from time to time his food was thrown up. Chronic peritonitis contributed to accelerate his death.

Very probably there was a period when the solution of continuity of the mucous membrane in this individual had presented characters in some measure more inflammatory than those discovered when the body was opened; very probably, around this solution of continuity, the mucous membrane had been more or less inflamed. The ulceration appeared to progress towards cicatrization; after some time still the mucous membrane would probably have been found white and healthy above the thickening of the middle part of the stomach, as it was found white and healthy above the thickening near the pylorus. If, however, from the mere examination after death, there could still be a doubt that the inflammation of the mucous membrane had been in this case the original affection, and that it had existed previously to the alterations of the other tunics, and that the lesions which it presented were, in some measure, but the vestiges of more serious lesions, we would appeal to any other source of information, we would interrogate the symptoms; and from their order of succession we would draw the inevitable conclusion, that the tissue primarily inflamed was the mucous membrane (first stage of the disease; gastritis in the acute form); that, subsequently, the inflammation of this membrane became less intense (cessation of the fever and of the epigastric pain); that it continued, however, at the same time that the

subjacent tissues became consecutively diseased (difficulty of digestion ; habitual anorexia ; vomiting becoming more and more infrequent).

Lastly, when the mucous membrane of the stomach has recovered its whiteness and natural consistence, and when there is at the same time induration of the subjacent tissues, should we, in all cases, consider this membrane as returned to its perfectly normal state ? Observe, that in several of these cases where the mucous membrane appears perfectly healthy to the eye of the anatomist, digestion continues painful and laborious, such as it exists in persons whose mucous membrane presents, after death, more or less marked traces of chronic inflammation. It seems, then, that in cases of this kind the mucous membrane recovers the appearance which, at least as far as our feeble means of investigation go, constitutes its normal state, before it recovers the integrity of its functions ; it seems there is a period when this membrane is no longer inflamed, but when it has not yet the power of producing on the food that modification which should convert it into chyme, whatever be the physical, chemical, or vital process by which this change is effected. It is, moreover, not in the mucous membrane of the stomach only that we shall find instances of tissues, which, after having been the seat of inflammation more or less evident, have recovered a healthy appearance, whose functions are still, however, considerably altered. Thus, in some persons who presented during life all the symptoms of chronic bronchitis, with copious purulent expectoration, I found the mucous membrane of the larynx, trachea, and bronchi, white, and to all appearance healthy. From mere anatomical inspection one would not have hesitated to admit that this membrane was perfectly healthy ; and yet the copious puriform secretion, of which it was the seat, proved its pathological condition.

The healthy appearance, at least apparently so, of the mucous membrane of the stomach in cases of chronic gastritis, is, however, rather a rare circumstance, and most frequently it presents different changes with respect to its colour, consistence, thickness, and form. These varied alterations may exist separate, or combined. Thus, at the same time that the mucous membrane is red and brown, it may be indurated or softened, hypertrophied or attenuated, etc. At other times, some one or other of these alterations may present itself alone ; there may be, for instance, mere change of colour ; at other times, a thing more remarkable, the consistence of the mucous membrane is found to be considerably diminished, without its colour having undergone any change.

Are the changes which the inflamed mucous membrane undergoes in its colour different in acute and in chronic inflammation of the stomach ? There are some shades of colour which belong equally to these two states ; there are others which denote more particularly the existence of a chronic inflammation.

The shades of colour which principally belong to chronic gastritis are the grey slate-colour, the brown colour, and, lastly, the more or less deep black colour. I do not mean to say that these different tints may not also be found in some cases of very acute inflammation ; they have been sometimes produced by Professor Orfila in animals, into whose stomach this learned and skilful experimentalist had introduced irritating substances. In the human subject there are, I think, very few instances of the grey slate-colour, or of the brown or black colour, being found in stomachs affected with acute inflammation ; nothing, on the contrary, is more common in chronic gastritis. It is probable, that in the human subject, as well as in those animals experimented on by M. Orfila, the acute inflammation was chiefly observed with these shades of colour only in cases of poisoning by acrid or corrosive substances ; that is to say, in cases where the inflammation of the stomach having in some measure attained its most acute form, tends to produce rapid disorganization of the mucous membrane.

It seems to me remarkable enough that the same colouring is observed in the

two extremes, if I may say, of gastritis; namely, in super-acute inflammation, which proves fatal very rapidly, and in chronic inflammation, which oftentimes indicates its existence by very slight symptoms. This is the fact, such as experience presents it to us. In order to explain it, it would be necessary accurately to know what is the cause of the brown, grey slate-colour, etc., which the mucous membrane of the stomach presents, both in the case of super-acute gastritis, and more frequently still in the case of chronic gastritis. Now, on this point we can only form mere conjecture, which rests on such facts as these: Hunter, long ago, proved that every time arterial blood is arrested, or even merely retarded in its course, it takes on the colour of venous blood. Thus, for instance, if we open an artery in an animal, in a portion of the vessel previously intercepted between two ligatures, black blood issues from it, resembling venous blood. Hunter has also remarked, that the blood which comes from a divided artery, and which is effused into the surrounding cellular tissue, also becomes black on coagulating there. This same black colouring is also found in the blood of the majority of the cases of cerebral apoplexy, and in that of pulmonary apoplexy. Unless it be supposed, a thing not at all probable, that in these hemorrhages veins only supply the blood, it must be admitted, that in the brain and lung, the blood, red at the time when the effusions take place, subsequently acquired the black colour which it presents. Can we in a similar manner explain the brown or black colouring of the mucous membrane of the stomach in a certain number of cases of gastritis? For this purpose it is necessary that experience should have ascertained, that there are cases wherein the blood in an inflamed part circulates more slowly than in the same part when healthy, and wherein it even has a tendency actually to stagnate in this inflamed part. Now, this retardation of the circulation of the blood in an inflamed tissue has been proved by the experiments of Dr. Wilson Philip. An inflammation being produced in the cellular tissue of a frog's thigh, in the fin of a fish, or in the mesentery of a rabbit, the microscope, says Dr. W. Philip, soon shows that the motion of the globules of the blood, which is ordinarily so rapid, is perceptibly retarded, it seems to be even altogether suspended in the part where the inflammation appears most intense. If then it is proved, on the one hand, that under certain circumstances the blood circulates less rapidly, or is even arrested in an inflamed part; if it is proved, on the other hand, that the blood has a tendency to become dark when the circulation is languid or suspended, it will not seem unreasonable to explain in this way the brown colour of the mucous membrane of the stomach in certain cases of gastritis. But why was it observed, as I said awhile ago, only in the two extremes, in super-acute inflammation, and in chronic inflammation? It is for this precise reason, because in these two extremes stagnation of the blood more or less complete must take place, principally in the gastric mucous membrane. Thus, in super-acute inflammation, from the extreme and sudden dilatation of the vessels considerable embarrassment of the circulation must result, a sort of strangulation, the effect of which will be obstruction of the capillaries; and then, consecutively to this obstruction, the coagulation of the blood can be observed in the artery which goes to the inflamed part, in the same way as the blood is seen to coagulate in a vein below the place where the vessel is compressed. Thence the termination of the inflammation in gangrene may be the result; in this latter termination, accordingly, the coagulation of the blood in the arteries has been frequently observed, but this coagulation was considered as consecutive to the gangrene, whilst, from what has been now stated, I should be disposed, on the contrary, to think that the coagulation of the blood in the artery precedes this gangrene, and that the latter phenomenon is but the necessary result of it.

In chronic inflammation there will no longer be a complete stagnation of the blood, as in the super-acute inflammation just mentioned; in this chronic

inflammation also the mucous membrane will not present so black a colou, but only a grey-slate or brown colour, which will itself be more or less striking, according to the greater or less retardation of the circulation of the blood. Now it seems this retardation must exist every time the vessels of the inflamed part have undergone considerable dilatation : a dilatation which should be particularly marked in cases of chronic inflammation. This retardation of the blood in a part whose capillary vessels have been considerably dilated is the result of that law of hydro-dynamics, in virtue of which the course of any liquid whatsoever must be retarded, when flowing on in full tubes it passes from a narrower into a broader part ; this is one of the causes why in the normal state the blood circulates less rapidly in the capillaries ; we may readily conceive then, that it will circulate more slowly if the diameter of these numberless vessels come to be accidentally increased.

The dilatation of the vessels may also continue after the inflammation has ceased, and with it the brown colour must also continue. Indeed, independently of all explanation, it seems that in some cases this colour continues in a part formerly inflamed, but which is no longer so. There can be no doubt of this with respect to the skin ; we frequently see the skin around ulcers, which have cicatrized, and have been for a long time perfectly healed, still retain, to a greater or less extent, the more or less deep brown red colour. Analogy seems to lead us to admit, that in some cases, that which takes place in the skin, may also take place for certain portions of mucous membrane, and particularly the gastric mucous membrane.

It is at present so generally admitted that the different colours now mentioned are the result of inflammation, and particularly of chronic inflammation, that I do not consider it necessary to dwell on the proof. However, if any persons could still doubt that the slate colour, or the brown or blackish tints of the internal surface of the stomach indicates a chronic inflammation of this organ, I would submit the following facts to their consideration.

First. If the symptoms manifested during life by those persons whose stomach presents after death one of the tints now in question, be carefully observed, it will be found invariably that these persons have had symptoms of chronic gastritis ; such at least is the result of a great number of cases collected by me at the Charité. But it frequently happens that these symptoms escape an inattentive examination, either because they are really but little striking, or particularly because chronic gastritis frequently comes on only as a complication of another disease, which engages attention more or less exclusively. It has, perhaps, been too often said, that organic lesions, more or less severe, could exist without producing any symptoms. But how many of these lesions might have ceased to be latent, if, during life, all the functions had been the object of a scrupulous and patient examination !

Secondly. In the majority of cases, at the same time that the colour of the mucous membrane has undergone one of the modifications pointed out, it also presents other changes, which cannot be denied to be the results of inflammation: thus it is thickened, hard, covered with vegetations, etc. ; beneath it the other coats of the stomach also present occasionally traces of inflammation, more or less intense. If the co-existence of these different alterations and of the brown colour of the mucous membrane is the most general case ; if, on the contrary, this change of colour, without any other lesion, is much less frequently observed, we shall naturally be inclined to admit by analogy that, even when it exists alone, it is the result then also of an inflammatory process.

Thirdly. In certain cases of ulceration of the stomach, and more frequently in ulceration of the rest of the intestinal canal, the edges of these ulcers are found to be either of a grey-slate colour, or of a more or less dark brown. Now where an ulceration exists, the existence of inflammation cannot be questioned. If the

brown colour of the edges of the ulcer depended on any other cause than inflammation, why should it exist only around the ulceration? Why should we see it decrease and disappear in the intervals between the ulcerations? Again; you will find this same brown or black tint colouring the edges of some ulcerations of arteries; and here, as in the digestive canal, you will see the change of colour occupy only the circumference of the ulcerations, and between them the inner surface of the artery will resume its white colour.

Fourthly. It is not to putrefaction that the slate-colour, brown tinge, etc., of the mucous membrane of the stomach can be attributed; for more than once I have opened bodies in different degrees of putrefaction, and found the internal surface of the stomach and intestines presenting a livid red tint, either uniformly diffused, or arranged in patches, striæ, or bands. This reddish tint was probably the result of the transudation of the colouring matter of the blood through the vascular parietes, similar to the transudation of bile, which takes place more promptly through the gall-bladder. But whatever was the degree of putrefaction, whether slightly or very far advanced, I never saw any tint resembling the slate-colour or brown-colour of chronic gastritis.

It has been stated that this particular tint should be considered in the majority of cases as the result of the colouring of the mucous membrane by the gases contained in the stomach or intestines. This colouring is attributed chiefly to sulphuretted hydrogen gas; but in the stomach where the existence of this gas has never been proved, the brown colour is very frequently observed. Besides, there is no proof that sulphuretted hydrogen, or any other gas, possesses the property of imparting a brown or black colour to the animal tissues.

Until a series of gases have been inclosed in portions of the intestines, and trial is made whether these portions become coloured or not, the assertion in question should only be considered as a mere supposition.

The brown tint which the mucous membrane of the stomach presents when in a state of chronic inflammation, affords numerous varietes with respect to its arrangement and its extent. With respect to its arrangement, it is sometimes found circumscribed within a small number of points, forming as it were isolated spots, which may be round, or more or less irregular. In the interval between these grey, brown, or black spots, the mucous membrane may remain more or less white. In consequence of their exact circumscription and well defined colour, one would often say, that where these spots exist, a drop of colouring matter, more or less brown, was deposited. Sometimes in spots of this kind there is perceived merely a uniform tint; sometimes the naked eye, or by means of a lens, discovers that they are formed of an assemblage of vessels of an infinitely small diameter, which are themselves filled with black blood. These spots constitute so many small inflammations, circumscribed like the red spots, frequently observed in cases of acute gastritis.

Instead of the simple spots just described, the mucous membrane may present either brown patches of greater or less breadth or bands, striæ or lines of the same colour; in fine, it may present a uniformly brown or blackish tint in the fourth, the half, or even over the entire, of its extent.

Anatomists do not as yet seem to have particularly noticed a variety of black colour seldom presented by the stomach, but much more frequently by the small intestine. The internal surface of the latter then seems as it were studded with myriads of small black points of almost microscopic minuteness, which, according as they are more or less numerous, may give a more or less marked black tint to the entire intestinal surface. These black points are very different in their appearance from another species of black points, separate or aggregate, long since noticed by Peyer, and which appertain to follicles. If we examine those in question with the lens, we see that they occupy the summit, and more rarely the entire extent of filaments or plates, which are nothing else but the

intestinal villi. It is clear that if this species of black points be met with less frequently in the stomach than in the small intestines, it is, because in the stomach the villi are less marked and less numerous. By an attentive examination with the lens, the intestine being covered with a thin layer of water, we may satisfy ourselves that these myriads of black points, are the result of a very fine vascular injection of the intestinal villi. Some facts induce me to think, that the black injection of these villi, which renders them so apparent, is most frequently connected with a state of chronic inflammation of the small intestine. In several cases of diarrhœa of long standing, I found no other alteration than such a colour in the intestines.

If in all cases of chronic gastritis the colour of the mucous membrane presented itself as it has been now described, one might always discover, by merely inspecting the stomach, whether the inflammation took on an acute or chronic course, since we have seen that it is in a very small number of cases of superacute gastritis, such as those produced by poisoning, that the mucous membrane presents a more or less deep brown colour, and with the exception of these very rare cases, the brown colour indicates a chronic gastritis. But what is very important to know, is, that very often when the stomach is in a state of chronic inflammation, its mucous membrane is neither slate-coloured, nor brown, nor black, but presents a red colour, more or less perfectly similar to the red colour of acute inflammation. Very recently we opened in the Charité the body of a young man, who for upwards of eight months before his death presented all the symptoms of chronic gastritis, such as vomiting, sense of weight in the epigastrium after taking food, complete anorexia; the state of the tongue moreover was natural, a circumstance as common in chronic gastritis as it is uncommon in acute gastritis. In this individual the mucous membrane of the stomach was found to be of a bright red colour over a great part of its extent. In other individuals, who had presented the same symptoms, I found a brown colouring of the entire mucous membrane. One of the most prominent symptoms, vomiting, may also be absent, both in the case of red colouring and that of brown colouring. We do not mean to lay it down that gastritis, with bright redness of the mucous membrane, is an acute inflammation prolonged to an indefinite length, and that in really chronic inflammation there is a brown colouring of this membrane. We know that in both cases the same symptoms may manifest themselves; but it is very possible that in these two cases the treatment should be different. We think that in the former case, however long the disease may have existed, means exclusively antiphlogistic, and a mild regimen, are alone suitable; whilst the second case, on the contrary, is probably one of those in which it may be well to have recourse both to medicinal substances of a more or less stimulating nature, and to a less mild regimen.

Should we again refer to a chronic inflammation of the stomach another shade of colour of its mucous membrane, in which this tissue, instead of being either red or brown, is on the contrary of a dull white, milk-like colour, a colour widely different from the species of white tint, which seems to constitute its normal state? I think we should still refer to a chronic gastritis this remarkable modification of the colour of the mucous membrane. In fact, first I have found this colour always combined with other alterations which unequivocally indicated the existence of an inflammation, such as thickening and induration of the membrane; secondly, other inflamed tissues also present a tint of a duller white than is natural to them. Such is the case of the thickened and indurated cellular tissue which surrounds old ulcers; such also is the case of the serous membranes covered by membraniform productions, which, having been at first soft and red, have gradually become indurated, and have at the same time acquired a very remarkable milky whiteness. Who has not seen such spots or

white patches in the pericardium, in the arachnoid, or in the pleura? Observe carefully through what stages the inflammation has passed, in order to produce this unusual whiteness in the cellular tissue and in the serous membranes; you will find the same stages and degrees in inflammation of mucous membranes; analogy will lead you then to admit, that in this last tissue, as in the others, the white colour of a duller character than in the normal state may be considered as a result of inflammation.

Thirdly. Again, in persons who had presented all the symptoms of the best defined chronic gastritis, the stomach has presented no other remarkable lesion except large patches, in which the mucous membrane was harder and thicker, and at the same time of an evidently duller white than in the rest of its extent. In one case particularly, recently observed at the Charité, the local and general symptoms were so marked, that we actually believed the case to be one of what is called a cancerous affection of the stomach; the patient had several times vomited black matter, resembling coffee-grounds. Well! the stomach presented nothing but a milky white patch towards its centre, a little broader than the palm of the hand, with hardening and manifest thickening of the mucous membrane, in that part only where this unusual white tint existed. This tint was, moreover, marked in several points by red spots, the result of partial vascular injections; and further, in every part where this same milky tint existed, the mucous membrane was covered by a membraniform layer, of a dull white colour like itself, a species of exudation almost solidified, bearing some resemblance to the epidermis, which terminates around the cardia, when this epidermis, thicker than usual, forms a contrast by its whiteness and its inorganic appearance with the mucous membrane of the stomach, which beneath it becomes continuous with that of the œsophagus.

At other times, the milky white tint which we are now considering, coincides with a state of puffiness and softening of the mucous membrane; it is as it were furrowed with vessels; red spots are observed on it: this state strongly resembles that which has been described by anatomists under the name of soft cancer of the mucous membranes; it is, in my opinion, only one of the infinitely varying modifications which chronic inflammation may cause the mucous membrane of the stomach to undergo. This assertion appears to me the legitimate consequence of the facts already stated.

In almost all cases wherein the stomach has been the seat of an inflammation of long duration, *post-mortem* examination proves that the consistence of the mucous membrane has undergone more or less perceptible modification. Sometimes this consistence is increased; sometimes, on the contrary, it has suffered considerable diminution: in the former case there is *induration*, and in the latter *softening* of the membrane.

Induration of the mucous membrane of the stomach is one of the best anatomical characters by the help of which chronic gastritis may be distinguished from acute gastritis; and what we say here with respect to the inner coat of the stomach, may apply to all the membranous or parenchymatous tissues. In all acute inflammation produces several lesions, which do not differ from those to which chronic inflammation may also give rise. Thus, for instance, in mucous membranes softening may be observed, whether the inflammation has proceeded slowly or rapidly. Induration, on the contrary, belongs exclusively to chronic inflammation.

Induration of the gastric mucous membrane may be general or partial:—

It may exist, first, with the natural colour of the membrane, as is observed in the case of old inflammation of the skin or cellular tissue; secondly, with the mucous membrane of a duller white than exists in the normal state; we have already noticed this case; thirdly, with a greyish colour, or a more or less deep

brown colour. I have never seen induration, which we must not confound with simple thickening, accompanied by a bright red colour of the mucous membrane.

Induration of the mucous membrane of the stomach, though common enough, is observed still less frequently than its softening. The latter is unquestionably one of the most frequent changes observed in the stomach of individuals who die in the hospitals of different chronic diseases. If then, as I have elsewhere endeavoured to prove, softening of the mucous membrane of the stomach is often the result of its inflammation, we must conclude from this, that gastritis, whether acute or chronic, is a very frequent disease; whether it exists as a principal affection, or comes on only consecutively, and as a complication.

Considered in reference to its thickness, the mucous membrane of the stomach, when in a state of chronic inflammation, may present itself under three forms; first, it may have retained its natural thickness; secondly, the thickness may be more or less perceptibly increased; thirdly, instead of an increase of thickness, the mucous membrane may be attenuated. Let us examine these three states in succession.

We have scarcely any thing to say regarding the first state, that in which the mucous membrane is not either perceptibly increased nor diminished in thickness. This case is by no means very uncommon. At the same time the mucous membrane is found either simply red or brown, or presenting different colours at one and the same time, and more or less softened.

The increase in the thickness of the mucous membrane is very frequent in cases of chronic inflammation. It may exist either with a state of softening of the membrane, or, on the contrary, with its induration. In the former case, the increase in thickness is in some measure only apparent; the membrane is tumefied, puffed, swollen, as it were, by the liquids which flow to it from all parts under the influence of the inflammatory stimulus: thus the reticulated tissue of the skin becomes swollen, where a blister is applied. This tumefaction of the gastric mucous membrane with softening, is observed more frequently in acute than in chronic gastritis; yet it sometimes exists also in this latter case. On the contrary, the increased thickness, with induration, exists only in chronic gastritis, and is one of its least equivocal signs. There is, in this case, a real increase of density, true *hypertrophy* of the mucous membrane. This is the natural consequence of the more active nutrition of which this membrane must necessarily become the seat when, having been for a long time the seat of inflammation, it receives a greater quantity of blood than in its healthy state. As long as this hypertrophy alone takes place, it may be said that the inflammation has only given an excess of activity to the nutrition of the mucous membrane, nearly in the same way that exercise occasions hypertrophy of a muscle; but then, the laws of nutrition are still the same as those which existed in the natural state. If, on the contrary, instead of this simple hypertrophy, the gastric mucous membrane present the appearance of softening — if it be ulcerated — if its tissue is transformed into new tissues — then we must no longer merely admit an excess of activity of the phenomena of nutrition; but it must be observed, that the laws which preside over the production of these phenomena have undergone a change, and a real perversion. It is, moreover, very important to remark, that one or other of these effects, namely, mere increase in the activity of nutrition, or the perversion of this function, does not seem to be directly proportioned to the intensity of the inflammation. When violent, and of very long duration, it may occasion only simple hypertrophy of the tissue which it has attacked, apparently very slight; it may modify, and seriously pervert the laws of nutrition, and so produce disorganisations, and degenerations of the most varied character.

Whether the thickening of the gastric mucous membrane coincides with its

softening or its induration, it may have at once attacked a great extent of this membrane, or occupy only some circumscribed points of it. These separate partial thickenings may be scarcely perceptible to the sight, and appreciable only when the membrane has been detached. But at other times they are much more considerable. The result may be exanthemes, vegetations, tumours which present infinite varieties with respect to their form, their texture, their size, their number, and their situation.

I shall not dwell on a description of the very different and strange forms which these tumours may assume; but I shall observe, that very often it is solely in consequence of such or such a form that persons have considered themselves warranted in constituting distinct and particular diseases of several of these tumours, and that many are accustomed, without further examination, to separate their description of the history of chronic gastritis, as if a mere modification of form could establish a real difference between diseases similar in all other respects. Neither need I trouble myself with the differences in the size of these tumours, or with their varieties in point of number. These details are to be found everywhere; these differences, like those of form, are but accidental, and can no more serve than the latter to distinguish the nature of the disease. To attain this latter end, it will be necessary to study particularly their mode of development and their texture.

Considered with respect to their texture, or their anatomical composition, if I may to say, the tumours developed on the inner surface of the mucous membrane of the stomach, and which seem to be nothing but a morbid expansion of this membrane, may be divided into two classes. Under the first may be ranked all those tumours, vegetations, etc., whose texture represents accurately the texture of the mucous membrane, either indurated or in different degrees of softening; in the second class we shall place those tumours whose apparent texture no longer seems to have any resemblance to the texture of the mucous membrane, whether in the healthy or morbid state. The former class of tumours seems to me to be that most frequently observed; and if it is proved that induration and softening of the gastric mucous membrane are a result of its inflammation, these same alterations should also be connected with the latter, where they are circumscribed, and possess sufficient thickness to form tumours. It is manifest that this mere change of form cannot induce a change in the nature of the disease. No controversy can exist then except for the second class of tumours, whose texture no longer appears to be that of the mucous membrane, whether in its healthy state or in different degrees of inflammation. Thus, among partial thickenings of this membrane, several are formed of a hard homogeneous tissue, of a dull white colour, furrowed or not by vessels. Others constitute vegetations, fungous growths, either pediculated or connected by a broad base with the rest of the mucous membrane, and formed by a soft whitish or reddish tissue, resembling cerebral parenchyma, which is putrefied. This encephaloid tissue, so admirably described by Laennec, indicates evidently a remarkable modification of texture in the mucous membrane. But, if the development of this encephaloid tissue in the stomach is preceded by the same causes as those which give rise to chronic gastritis; if its presence is indicated by the same symptoms; if, in a great number of cases, it tends to become confounded, in reference to anatomical structure, with other changes which are the unquestionable result of inflammation; if, too, it must be combated by the same mode of treatment — it will, I think, be reasonable to conclude, that the encephaloid tissue developed in the gastric mucous membrane is the result of an inflammatory process. In making this assertion, I do not mean to say, that wherever the encephaloid tissue appears, inflammation has necessarily given rise to it. I think that, in the present state of science, we do not as yet possess sufficient data to establish such a fact. There are some tissues and organs in

which it would be impossible to prove, except by an analogy which might be fallacious, that the different accidental tissues were produced by inflammation; and, moreover, in all cases this inflammation can concur in their production only as an occasional cause, if there be a predisposition.

The situation of tumours of the mucous membrane, in such or such a part of the stomach, is far from being indifferent, since the greatest varieties may result in the symptoms from one or other of these situations. Who does not know how far from bearing any resemblance to each other, are the phenomena which manifest themselves when the vegetation occupies the parts around the cardia, which it obliterates more or less completely, when it occupies the pylorus, or when it exists only in one or other surface of the stomach?

Lastly, there are some cases where the gastric mucous membrane, instead of being thickened or hypertrophied, is thinner than in its normal state, and has undergone a real atrophy; it is principally towards the great cul-de-sac that this latter state is met with, where softening also is most frequently observed. Sometimes, however, I have found the mucous membrane towards the pylorus so attenuated, that it now resembled a sort of transparent extremely fine web. On attempting to raise it, it was changed into a reddish white pulp, as happens in certain degrees of softening. Should atrophy of the mucous membrane of the stomach, like its hypertrophy, and softening without diminution in thickness, be classed among the products of inflammation? At least, it is certain that, on the one hand, this atrophy, which seems to be but a form of softening of the mucous membrane, most usually accompanies other anatomical signs of chronic gastritis; and that, on the other hand, the symptoms observed during life are entirely similar to those which announce gastritis.* A woman, thirty-six years of age, died in the Charité in the month of March; during the three last days of her life she had frequent vomiting. The stomach presented several red patches in different points of its extent; still farther, in the splenic portion, both over the red patches themselves and in the intervals between them, the mucous membrane was softened, and at the same time so attenuated as not to equal in thickness the mucous membrane of the maxillary sinus.

However, it would not seem to me unreasonable to admit, that, in some cases, attenuation of the gastric mucous membrane results from mere atrophy, which is no more preceded by inflammation than the latter phenomenon precedes the atrophy of the muscles in phthisical patients. I have observed such an attenuation in some individuals labouring under chronic affections of the lung: in them it was not the mucous membrane only, but the muscular tunic also, which was considerably atrophied.

Ulcerations of the gastric mucous membrane are much more uncommon than of the mucous membrane of the termination of the small and large intestine. However, with respect to the frequency of these ulcerations, a difference must be established between acute and chronic gastritis. In the former, unless it be the result of the introduction of corrosive poisons into the stomach, ulceration is a phenomenon extremely rare. On the contrary, in the case of chronic inflammation of the stomach, the gastric mucous membrane is often found ulcerated; then this ulceration is most frequently single, and of greater or less diameter. Around it the mucous membrane may be healthy or diseased. The same may be said of the cellular membrane, which constitutes the bottom of the ulcer. When the latter consists of the cellular tissue considerably indurated, and when, at the same time, the portion of mucous membrane which exists around the ulceration is thickened, puffy, and, as it were, fungous, and traversed by numerous vessels; when shreds of inflamed mucous membrane, to greater or less ex-

* We must not, however, forget that similar symptoms may be the result of lesions of different kinds, and which require a very different treatment.

tent, are found on the bottom of the ulcer, under the form of vegetation, some physicians call this alteration a cancer of the mucous membrane which has terminated in ulceration. Is this a suitable expression? I shall discuss this point more in detail after having treated of the other coats of the stomach.

We shall not here refer to those cases mentioned in every work in which deep ulcerations of the stomach are observed to terminate in perforation of this organ — we shall not here refer to the circumstance that, in several patients, there is then effusion into the peritoneum of the matters contained in the stomach, whilst in others, where the parietes of the stomach no longer exist, the bottom of the ulcer is formed by the liver, the spleen, and the pancreas, which adhere to its circumference, and prevent any effusion into the peritoneal cavity. Here, however, we shall state a fact which is remarkable for the circumstances which preceded the perforation, and for the nature as well as the number of the lesions which existed simultaneously with it. We shall then cite the case of another individual, who also suffered from a cancerous affection of the stomach, and who presented this curious circumstance, that in him the stomach was perforated during an effort to vomit, and at a distance from the point where the cancer existed.

Case 1.—Communication between the cavity of a cancerous stomach, with the interior of the lung in a state of gangrene, through an opening which involved the pleura, diaphragm, and spleen which was in a great measure destroyed.—During life, signs of pneumothorax, and of an old affection of the stomach.

A tailor, forty years of age, a native of Bavaria, of a lymphatico-sanguineous constitution, with hair, eyebrows, and beard of a brown colour, blue eyes, complexion not high coloured, still not pale, five feet in height. Had small umbilical hernia of long standing. His father and mother were healthy, and still alive. He states that he never had been subject to chest affections, and that he had always enjoyed good health up to the close of 1828, when, for the first time, he felt frequently very ill from difficult digestion; he experienced alternately a devouring appetite and absolute disgust for every kind of food. He had been in France since 1810, and had constantly lived in the greatest hardship, being addicted to the excessive use of ardent spirits. He had had nine attacks of syphilis in three years, and generally slept in the open air. When sober, however, he was constantly employed at his trade, he being a very clever and expert workman, as his master told me, who furnished me with these particulars.

It appeared that, on the 20th of August, 1829, after a violent altercation with some comrades, he went and laid down in an unsheltered place, according to custom, and slept there for three hours. When he awoke he was extremely cold, and returned home, and as the daylight had not yet appeared, he lay down on a table, and slept till morning. On awaking, he had a violent shivering, an acute pain under the left breast, and was altogether very ill. A little after dyspnœa came on. At last, towards the fourth day, he expectorated a great quantity of yellow thick sputa (never streaked), and not having any remarkable taste. He had violent fits of coughing, which lasted, without ceasing, for more than half a day. Fumigations with vinegar, were recommended for the pain of head. He took some demulcent drinks, and found himself somewhat relieved on the following day. The pain and cough were gone. On the 12th September he entered the Charité, the above-mentioned symptoms having increased considerably in the course of a few hours; and on the 13th, when we visited him, he presented the following symptoms: — Countenance pale, emaciated, and expressive of distress; breath very fetid; the gums red and excoriated; tongue pale and moist. The patient experienced extreme difficulty in articulating his words; breathing very short; there was even orthopnœa: extreme debility induced him to lie on the left side, but he was

soon obliged to raise himself suddenly, and to place himself in a semi-recumbent posture, resting on his left elbow. The chest projected on the left side, and its development was such that the intercostal muscles were protruded beyond the ribs. The right side alone moved during respiration, and the motions of elevation were perceptible on the left side only at the intervals between the ribs. The vibration, which was nearly absent on the left side, was very perceptible on the right. The respiratory murmur wanting on the left, and very distinct on the right side. The metallic souffle is heard occasionally above the left breast, but it is light and intermittent. On the left there is a sonorousness both absolutely and relatively very great. On the right the sound is natural. When the patient sits up, a position in which he is able to remain only for a few moments, the phenomena in the posterior part of the chest are precisely similar to those on the anterior. The voice is resonant and amphoric on the left; it is natural on the right. The metallic tinkling is perceived to be but very slight; this may be attributed, no doubt, to the impossibility of auscultating the patient in a satisfactory manner. Lastly, the cough is frequent, the respiration panting; the expectoration, which is rather considerable, presents diffluent white sputa, not frothy, and mixed with light flocculi; their stench is suffocating. (One would think their odour to be that of fæces combined with that of gangrene. We shall presently see that the diagnosis was well founded.) Pulse weak and frequent; skin rather colder than natural. On the 14th, same state; more difficulty in the respiration. On the 15th, the patient is no longer able to rest; every position is painful to him; the orthopnœa is increased since yesterday; cough violent; the odour of the sputa extremely fetid.

On the 16th, for the first time, we were able to examine the posterior part of the thorax satisfactorily; we found towards the inferior angle of the scapula the metallic tinkling very distinct, the respiration amphoric, the voice the same, the metallic souffle very loud during inspiration. This point is painful. On the right the respiration was bronchial; on the left there was dulness; on the right sonorousness; just the contrary anteriorly, where the phenomena remained similar to what they were on the 15th. Pulse frequent and small; skin cold; tongue red in the centre and edges, and presenting some white spots towards the base. Great shortness of breath, cough less frequent than yesterday; orthopnœa; sputa very different from what they were observed to be the preceding days, being now viscid, like a thick solution of gum, and mixed with white grains about the size of a hemp-seed; their odour not so strong as on the preceding evening. This night the patient slept a little; he is now very feeble; countenance pale, eyes sunk; the alæ nasi depressed; there is a great appearance of dejection and anxiety; voice changed.

On the 17th the same general state; sputa contain less white grains than on the preceding day, their odour was sourish; the smell from the patient resembled that which comes from persons in whom, after amputation, the lung has become the seat of suppuration. He can now lie on the left side.

On the 18th there was great dyspnœa; the sputa were of the same character, but much less copious; but little cough; countenance very much dejected and pale; voice very weak, and articulation very difficult. The patient slept a little; he sits up, embracing his knees between his hands, or when fatigued, throws himself on his left side. Pulse ninety-five, hard, small, and wiry; extremities cold; some sweat on the chest, which is very much enlarged on the left side, very sonorous, presenting no vibration, and painful; the intercostal spaces give to the touch the sensation of a bladder full of air. We hear only the metallic tinkling and resonance of the voice on the right; respiration puerile; dilatation not much marked; respiration almost entirely abdominal; some vibration and some pain also, but less severe than on the left side. No diarrhœa, three stools at most; no desire for drink or food; breath sour.

On the 19th the state of the patient worse in every respect. The metallic and amphoric murmurs increased. No sputa; but little cough; unable to articulate a single word; cold, clammy, fetid, sour smell. The mucous râle usually indicating the approach of death at about two o'clock in the afternoon; died at nine o'clock without a moan.

Post-mortem, twenty-one hours after death. Great emaciation; entire body of a dull pale colour; considerable enlargement of the left side of the chest. An incision made between the seventh and eighth ribs gave exit to a quantity of air, sufficient to extinguish and again to light a candle. The left lung was pressed along the spine, and adhered by its posterior surface to the parietes of the chest; superiorly the adhesions were of long standing, and inferiorly they were recent. This organ was become carnified, and its green colour was not owing to cadaveric decomposition. The cavity was half filled with a liquid somewhat resembling whey, in which whitish, friable clots floated like cheese. This lung being inflated through the trachea, presented an aperture situated towards the middle part of the circumference of the left lobe; two fingers from its edge the air which escaped from it produced bubbles, which burst on the surface of the effused liquid; lower down, this edge adhered to the ribs through the remainder of its extent, and on destroying this connexion a greyish brown eschar was found of the size of a filbert, not entirely stopping up a second aperture. These two openings were formed on the outer wall of a burrow which contained some pulmonary detritus, and communicated by means of adhesion and subsequent suppuration with the great cul-de-sac of the stomach; the aperture was capable of admitting two fingers. This latter viscus was scirrhous through its entire cardiac portion, and was from one inch to eighteen lines thick towards the perforation. We shall speak of this state in another place.

The pleura costalis was ulcerated through almost its entire extent, and over those points not adhering to the lung; it exposed to view the internal intercostals, which were also perforated in some points over their entire surface. The parietal pleura was smooth and covered with a very fine pseudo-membrane, which was gangrenous some points, and which, when cut into perpendicularly, led to cavities containing a detritus resembling soot diluted in water, and also gangrenous pus; a very characteristic odour was exhaled from it; it resembled that of the sputa of the 12th, but was stronger and more suffocating. These cavities were large enough to contain a hemp-seed, some of them even a small pea. The summit of the lung contained some cretaceous masses, deposited in the traces of old cavities formerly obliterated; their great hardness indicated the remote period of their formation.

The right pleura contained only a little limpid serum; here and there it was inflamed, and presented a slate-coloured tint; on some points only it was covered by false membrane, similar to that on the left side. The lung, which was in a great measure pervious to air, was covered by a tissue resembling that on the left side, but not continuous; it was deficient principally where some spots were observed, which led, as on the left side, to gangrenous cavities; they were more common on this side. The summit of the upper lobe presented an appearance of retraction, and some rugæ, indicating the existence of former cavities. When incised vertically it presented cretaceous masses, as on the left. The pericardium was red to about one-third of its extent on the left; on the right there were some arborisations. The heart presented here and there some whitish patches. It was not large in size.

The diaphragm on the left side was visibly altered in its texture, and participated in the cancerous degeneration of the stomach at the point of its perforation only: at a distance from that it was intact, and presented nothing remarkable.

The stomach contained a liquid like to that of the left thoracic cavity; its

parietes gradually increased in thickness from the pylorus, which was intact to the great cul-de-sac, which was perforated, as has been already mentioned. Its substance was indurated and fatty, its colour was white, more particularly at the part occupied by the muscular coat, which appeared to be a layer distinct from the rest; towards the small curvature, and around the solution of continuity, the mucous membrane presented numerous fungous growths, the vertical section of which exposed to view a white tissue, traversed by a very small number of bloodvessels.

The spleen was gone; it formed the centre of the purulent collection formed through the diaphragm; its parenchyma might still be recognised in its almost natural state towards the two extremities of its great diameter; its entire centre was reduced to a brownish pulp, and formed several incomplete septa, which lay transverse to the axis of the burrow.

The gastro-colic epiploon was very red, and presented a multitude of miliary vegetations, which were also red and hard. The liver was large and very yellow, but did not grease the scalpel. The ductus choledochus was very broad. The kidneys were healthy; the left adhered by its upper extremity to the cul-de-sac of the stomach, and to the mass formed by this viscus, the spleen, and the diaphragm. Its suprarenal capsule no longer existed; it was found on the right, where it was large.

The intestines, which in general were in a state of inflammation, were covered with a sero-purulent, creamy membrane; the lower part of the lesser pelvis contained some spoonsful of a thick purulent liquid. The mesenteric glands, and chiefly those adhering to the vertebral column, were indurated and scirrhous.

The bladder was healthy; the urethra bore traces of a former inflammation; the mucous membrane was ulcerated in different points, and excoriated towards the free orifice.

Case 2.—Cancerous ulcer of the stomach; bottom of the ulcer formed by the pancreas—Perforation of the parietes of the stomach during an effort of vomiting—Peritonitis.

A copper-smith, aged sixty-four years, stated that he was tormented the last month only with very severe abdominal pains, which lasted for half a day, then left him, and returned in a day or two.

There was at the same time complete loss of appetite, nausea, and vomiting. The introduction of food into the stomach increased, or even brought on abdominal pains, the precise seat of which the patient did not fix upon. The food was most frequently partly thrown up, some time, or more rarely immediately after it had been swallowed. The patient was not very strictly examined, his trade of a copper-smith having inclined us to think that his symptoms were attributable to metallic emanations; in fact, that it was a case of lead colic, accompanied by some unusual symptoms. Consequently, we ordered him four grains of tartar emetic in a glass of water; a narcotic lavement; decoction of prunes sweetened for his drink.

He vomited very much after having taken the tartar emetic, and had copious evacuations by stool. After an effort to vomit, he felt the sensation as if a ball, commencing at the epigastric region, had descended below the umbilicus. From this moment all the symptoms of super-acute peritonitis made their appearance. He died the following day.

Post-mortem.—Head and chest perfectly sound.

Abdomen. — A great quantity of reddish serum, mixed with albuminous flocculi, was effused in the abdomen. The peritoneal coat of the intestines presented patches of a bright red colour in different points. The mucous membrane was healthy.

Stomach. — On the anterior aspect of this viscus, about three or four fingers

breadth to the left of the pylorus, very close to the edge of the diaphragm, was observed a perforation large enough to admit the extremity of the little finger. The contents of the stomach were no doubt effused into the cavity of the peritoneum through this perforation, which was occasioned by a rupture of the diseased parietes of the stomach in the midst of the efforts made to vomit. Thence the peritonitis; the sensation of the ball experienced by the patient, probably indicated the moment when this effusion had taken place. An incision being made into the stomach, we found posteriorly, and more to the left than the perforation of the anterior wall, an ulcer nearly three or four times as large, with thick raised edges, irregular in its form, the bottom of which was formed by the pancreas, the coats of the stomach having been in this part entirely destroyed. A dense cellular tissue united the edges of the ulcer to the pancreas, and thus, by a wondrous resource of nature, prevented effusion into the abdominal cavity. Around this ulcer the coats of the stomach, which were considerably thickened, had degenerated into a white lardaceous tissue. The bottom of the ulcer itself presented a blackish layer, reduced to putrilage. Beneath this layer, which was from four to five lines in thickness, the tissue of the pancreas had retained its natural appearance.

SECTION II.

ALTERATIONS OF THE TISSUES SUBJACENT TO THE MUCOUS MEMBRANE.

In the preceding paragraph, I endeavoured particularly to describe the numerous and varied alterations which the gastric mucous membrane may undergo when affected with chronic inflammation. In this second article I shall treat of the lesions of the other tissues which enter into the composition of the parietes of the stomach.

Situate beneath the mucous membrane, and still dependent on it, the follicles, scattered over the internal surface of the stomach, present certain alterations, which act an important part in the diseases of the stomach. These alterations principally regard, first their size; secondly, the structure of the parietes; thirdly, the nature of the ordinary secretion of these follicles.

There are stomachs on the inner surface of which the most attentive examination can with difficulty discover some cryptæ, which are scarcely apparent; and this nearly complete absence of follicles may be found, as well in a stomach apparently healthy, as in a stomach in different degrees of inflammation of an acute or chronic form. On the internal surface of other stomachs the follicles are much more visible; being really hypertrophied, they present themselves as rounded granulations, both separate, and aggregated in different points of the stomach. It is not probable that in such cases the follicles observed are of new formation; but having been too small in their normal state to be perceptible, they became apparent according as the inflammation, by rendering them the seat of a more active nutrition, has increased their size. This unusual development of the follicles in the stomach may be either partial or general; when partial, it is observed principally around two points; first, around and a little beneath the cardiac orifice; secondly, towards the pyloric extremity of the stomach, to the extent of some fingers' breadth beyond the point of separation of this organ and the duodenum. The mucous crypts are sometimes found so much enlarged and so agglomerated in this situation, that the internal surface of the stomach then resembles the structure of the duodenum, particularly in the first flexure of this organ, where the mucous cryptæ are larger, more numerous, and closer to each other than in any other point of the digestive tube, except, however, where Peyer's glands exist; these latter, in their normal state, are much less voluminous than the cryptæ of the duodenum.

When the development of the gastric follicles is general, two varieties of appearance are presented on the internal surface of the stomach. Sometimes a great number of granulations are scattered over its entire surface, of various sizes, white, grey, red, or brownish, in the centre of which one may often discover an orifice, frequently surrounded by a red or black vascular circle. Sometimes, in consequence of a still greater development of the follicles, the mucous membrane presents a mamillated appearance over a greater or less portion of its surface. At first view, one might suppose that this mamillated appearance depends on the unequal hypertrophy of the mucous membrane in its different parts; this may be true in some cases; but attentive examination has more than once satisfied me, that the mamillary appearance of the gastric mucous membrane may also be owing to the simultaneous increase of nutrition in a great number of the follicles; it is these latter, which, being hypertrophied, constitute the mamillæ; and the depressions, or furrows, which are between them, appear to be merely portions of mucous membrane not raised by the follicles. When the internal surface of the stomach presents this mamillated appearance, there usually exists at the same time a grey or brown colour of the mucous membrane, and during life the different appearances which characterise chronic gastritis are observed. More than once I found no other lesion in persons who had presented all the rational signs of what is called a cancerous affection of the stomach, such as lancinating pain in the epigastrium, whether continued or not; pale yellow tint of countenance, marasmus, vomiting of food, and of black matters, etc.

Such are the principal alterations which the mucous follicles of the stomach present in the human subject; but in the horse I have frequently found in these same follicles other lesions which appear to me particularly deserving of attention, from the inferences which may be deduced from them with respect to the nature of some of the disorganizations and changes of several of our tissues.

It is not uncommon to see rounded tumours on the inner surface of the horse's stomach, the size of which varies from that of a cherry or a walnut to that of a large orange. The mucous membrane passes over them, and in the centre of each is an orifice, through which a probe, being introduced, readily passes into the interior of the tumour, which, far from being solid in its structure, forms on the contrary a mere pouch, filled with a liquid, which varies in its nature and consistence. Sometimes this liquid resembles mucus, sometimes it presents a purulent appearance; at other times it has more consistence, is of a grumous character and friable, of a dull white or light yellow colour; whilst at other times it resembles honey, or that which escapes from melicerous tumours, developed beneath the skin; in more than one instance the matter accumulated within these tumours resembled the sebaceous, fatty matter, found in certain cutaneous pimples. The anatomical composition of the parietes of these tumours was not less variable than the nature of the liquid which they contained. In some these parietes were very thin, and were formed of prolongations of the mucous membrane, covered externally by a more or less dense layer of cellular tissue. In other tumours this cellular layer gradually assumed a fibrous aspect, and sometimes was found to be changed into real cartilage.

I have sometimes seen the fibrous or cartilaginous parietes of these tumours divided into very many cells, which contained a number of entozoa, having all the characters of the nematodes of Rudolphi, of a beautiful white colour, very thin at their two extremities, from one to two lines in length, of the thickness of a hair, moving with great agility in the cells in which they were accumulated, being found also inside the principal pouch, escaping through the central orifice of the latter, and spreading over the internal surface of the stomach. These worms were not the product of putrefaction, for they were found in horses which were opened immediately after being slaughtered.

What is the nature of these tumours ? If for the purpose of discovering it we commence by opening the largest of them, we are left in uncertainty with respect to their origin and their mode of formation, and we are induced to class them among those cysts which may be developed within the animal tissues, and particularly within the cellular structure which surrounds and separates these different tissues. Still, on examining even the most complicated case, one circumstance almost invariably strikes the observer, and that is, the existence of an orifice in the centre of these tumours ; the regularity of this orifice, its uniform position, its diameter, which is always the same, the appearance of its edges, are incompatible with the idea of a solution of continuity, and already induce us to suspect that this is a natural opening, and that it is probably the dilated orifice of an enlarged follicle. However, this is but a mere presumption ; and if we study smaller tumours with more simple parietes, this presumption becomes a certainty : we see the follicle become enlarged by insensible degrees, its parieties become hypertrophied, its cavity dilated, new tissues developed around it, and the mucus, which it secretes in the normal state, become regularly changed into purulent, tuberculous, sebaceous, melicerous, or cretaceous matter, and replaced at length by a fluid, within which living beings, entozoa, are developed. When once these successive changes are perceived and appreciated, the nature of the largest of these tumours is no more difficult to be ascertained than that of the smallest and most simple. Some of these tumours present no central orifice ; but as every other part is the same, we must only infer that this orifice has become obliterated in the same manner as we frequently see the orifice of the cutaneous follicles disappear, which, being enlarged, become dark pimples (*tannes*). Thus, and this is the general conclusion which I shall deduce from the preceding facts, a tissue or organ when it has once deviated from its normal mode of nutrition, may undergo the most varied, the most unexpected changes, whether in its form, or in its texture ; and in this series of changes it may become so unlike itself, that it would not be recognised if we did not study in their regular order the numerous changes which it has undergone. By proceeding in this way we may often prove that several accidental productions, which are considered as tissues of an entirely different nature, and are produced entirely within the tissues of the normal state, are but these latter tissues modified. I have elsewhere endeavoured to prove that this was the case, for instance, with the pulmonary granulations ;* and in the continuation of this work I shall endeavour to comprise under this head the formation of scirrhous degeneration of the stomach.

The liquids secreted by the healthy stomach may be more or less altered with respect to their quantity and qualities in cases of chronic gastritis. An individual who entered the Charité with all the symptoms of this disease, vomited every day, for a long time, nearly four pints of a whitish glairy mucus, resembling the white of egg before it is boiled. This mucus was vomited several times in the twenty-four hours ; what was most remarkable in the case is, that the little food taken by the patient was never vomited. On opening the body, no other lesion was found in the stomach except thickening of the mucous membrane, with a brown colouring of its tissue and very marked enlargement of the follicles.

Among the matters found after death in the stomach in chronic inflammation, and which are sometimes vomited during life in prodigious quantity, we must not forget that black matter, which has for so long a time engaged the attention of pathologists, and which has been compared to a solution of chocolate, or to coffee-grounds. Two questions may be started here : first, what is the nature of this matter ? second, is its secretion connected with any special lesion of the stomach ?

* Pathological Anatomy,

I sent to M. Lassaigne a certain quantity of black matter vomited by a woman, who for more than a month had been throwing up a pint of it every day. It contained water, albumen, a free acid of an organic nature, and further, it was rendered turbid and blackish by holding in suspension a deep brown colouring matter, insoluble in water, but soluble in sulphuric acid, and presenting, when thus dissolved, a beautiful blood-red colour, similar to that presented by the colouring matter of the blood in the same acid. When submitted to calcination, it burned without swelling, and left a slight residue of a brick colour, consisting of peroxide of iron, and traces of phosphate of lime, just as it is furnished by the colouring matter of the blood.

From this analysis it follows that the black colour of the matters vomited in certain affections of the stomach is owing to the presence of an organic element closely resembling the colouring matter of the blood. Such is the conclusion to which M. Breschet also came, when after having proved in his beautiful work on melanosis, that this accidental production is principally formed of a colouring matter very similar to that of the blood, induction led him to class the matter of black vomit under the head of melanosis. In another work* I tried to confirm this opinion by new proofs. In a stomach which I recently examined, I found black colouring matter under two forms. First it existed free in the cavity of the stomach, on the inner surface of which it had been secreted, and further, in several places, it was combined with the gastric mucous membrane, and gave it a beautiful black colour, in the same manner as it colours certain portions of mucous membranes in several animals in the normal state.

Thus then, with respect to its chemical composition as well as to its colour, the matter of black vomit should be considered as similar to the matter of melanosis; like the latter, it is formed principally of a colouring matter, which resembles very strongly that of the blood. It must be admitted that in the act which separates it from the blood, it may be more or less modified; the result of which will be, that under some circumstances it will be completely identical with the matter which gives its colour to the blood, whilst under other circumstances it will differ more or less from it.† This same thing happens with respect to several other products, of the healthy or morbid state, which come from the blood. Thus the serum separated from the blood on the surface of serous membranes is no longer the same as that which is found in the blood with respect to the proportion of water, albumen, and the salts it contains. The same may be said of the fibrin, etc.

We shall here give the history of a case in which black matter was found scattered over the internal surface of the stomach in the form of black spots, at the same time that it existed free, and in a liquid form in the cavity of the organ.

Case 3.—Melanosis of the stomach—No other gastric symptoms but total loss of appetite—Dropsy without any appreciable lesion to account for it.

A woman, about fifty years of age, died in the Charité during the month of February. At the time of her entering the hospital she had general serous infiltration of the subcutaneous cellular tissue and ascites. To no purpose did

* Pathological Anatomy.

† It is possible that further researches may prove that the black colouring matter which constitutes melanic productions differs altogether in certain cases, with respect to its chemical composition, from the colouring matter of the blood, and that it is then a secretion of a new formation, just as the numerous colouring matters, blue, green, etc., which so richly tint the skins and coverings of several animals. Some physiological data would incline me for instance to think that the black colouring matter of the lungs, which abounds so much in old persons, is principally formed of carbon.

we endeavour to find out the cause of this state; the pulsation of the heart seemed to be natural; there was no sign of any disease of the liver or of any other viscus. The previous history of the case did not throw any light on it; she stated that her dropsy had set in gradually, commencing at the extremities, and extending to the abdomen; she had never felt any pain in the latter part, nor any difficulty of breathing till the ascites had become considerable. For the six weeks which elapsed between her admission and death, the dropsy did not diminish; the general debility constantly increased; some diarrhœa occurred from time to time, and there was complete loss of appetite; no pain in the epigastrium, no vomiting, the appearance of the tongue natural. The patient went on sinking gradually, and died without presenting any new symptoms.

On opening the body no lesion was found in the heart or its appendages. The lungs were engorged posteriorly, but healthy in other respects. The thoracic duct contained, as usual, a little colourless, limpid serum. A similar liquid was effused in great quantity into the peritoneum, which presented not the slightest trace of inflammation. Liver to all appearance healthy. But the stomach presented a species of change, which could scarcely have been anticipated. On making an incision into it along its great curvature, there escaped a fluid black as ink, and which, when brought in contact with linen and white paper, gave them a tint similar to that which would have been produced by applying the choroid membrane to these substances. The quantity of this liquid contained in the stomach might be estimated at about three ordinary glassfuls. The inner surface of the stomach having been washed and well cleaned, we found it dotted with a great number of spots of a deep black colour, all accurately circular or oval. Three or four of these spots were a little broader than a two-franc piece: eight or ten of them were the size of a franc piece; the others, much more numerous, were from the size of a ten or five sous piece to that of a grain of millet; in other parts they presented themselves merely as very small black points. Around the two larger spots and a few of the others the mucous membrane presented a livid red colour, which, being considerably marked for the space of some lines around the black spot, became gradually fainter according as it receded; around the other spots, in the intervals between, and in every other part, the inner surface of the stomach was pale, and the mucous membrane presented no appreciable alteration with respect to its consistence and thickness. It was only in the mucous membrane that the black colour existed, but it presented it equally strong on its two surfaces; where it was thus coloured, it was a little thicker and more resisting than elsewhere. In some points the cellular tissue subjacent to the black points was reddish. We observed nothing remarkable in the rest of the digestive tube.

When we perceived these black spots like ebony scattered over the internal surface of the stomach, we were struck by their strong resemblance to red gangrenous patches, and particularly to the eschars occasioned by concentrated sulphuric acid when taken into the stomach. Still no gangrenous odour was exhaled from the stomach; the manner of the patient's death repelled all idea of poisoning by a corrosive substance; there was no symptom of any acute affection of the stomach; on the other hand a resemblance might be observed between the nature of the black spots of the mucous membrane, and that of the liquid of the same colour contained in the stomach. Hence we renounced all idea of a gangrenous affection, an idea which accorded neither with the nature of the symptoms, nor with that of the lesions when more attentively examined. In this case we saw nothing but melanosis of the stomach, in other words, a secretion of black colouring matter, which, on the one hand, had been deposited in the tissue itself of the mucous membrane, whence the accidental black colour of this membrane, similar to that which exists naturally in animals in certain portions of their mucous membranes, and which, on the other hand, had been

exhaled on the free surface of the mucous membrane, whence came the black fluid in the interior of the stomach.

I thought it useful to publish this fact: first, because but very few examples of similar deposition of black pigment in the form of circumscribed spots in the tissue of the gastric mucous membrane have been as yet recorded; secondly, because this fact may not be devoid of importance in reference to forensic medicine, as presenting lesions which in some respects resemble those which may be occasioned by sulphuric acid; thirdly, because this fact proves that a matter similar to that which constitutes black vomiting in certain cancers of the stomach, may be exhaled in this organ without any cancerous affection, or even without gastritis; for here in the interval between the black spots, the mucous membrane was very healthy, and there is nothing to prove that these black patches were the result of an inflammatory process. It is probable that the black pigment effused into the stomach formed there during life in only a very small quantity, so as to be able to pass entirely into the duodenum; for if it were more abundant it must have been discharged by vomiting. Probably also its exhalation did not commence until a little time before death. We should not forget how little marked the gastric symptoms were. Loss of appetite was the only sign of any gastric disturbance. Another remarkable circumstance in this case is the existence of dropsy (anasarca and ascites) without any appreciable lesion, whether mechanical or inflammatory, which can account for it. Here it is not in our power to ascend to the cause which produced this dropsy; for to say that it depended on over-activity of the exhalants or atony of the absorbents, or on a want of equilibrium between these two orders of vessels, is mere hypothesis. All we see is an increase of quantity in the liquid which filled the areolæ of the cellular tissue, and the serous membrane of the abdomen. Thus, then, notwithstanding the great light which modern researches have thrown on the etiology of dropsy, experience obliges us to admit that there are still some cases in which neither the study of the symptoms nor pathological anatomy can as yet reveal the cause.

I already tried, in a preceding part of this work, to show, how, consecutively to inflammation of the mucous membrane, and whether this inflammation still continues or has disappeared, the tissues subjacent to it may undergo different species of alteration, which we shall now describe.

In the number of those tissues or anatomical elements, besides the mucous membrane, which enter into the structure of the parietes of the stomach, we must place in the first rank, with respect to the frequency and importance of their alterations, the two cellular layers placed, one between the mucous and muscular membrane, the other between the latter and the peritoneum, which are connected together by cellular prolongations extended between the fasciculi of the muscular tunic. When they are attacked with inflammation, and their normal nutrition has become deranged, these different portions of the cellular tissue may undergo changes of the most varied character with respect to their form and texture; thence the same thing happens with respect to their morbid states as we have already seen happen in certain diseases of the follicles, namely, that for want of tracing their successive development, their origin and nature have been more or less mistaken.

The submucous cellular tissue is seldom altered in cases of acute inflammation, when the mucous membrane is most seriously affected; sometimes, however, it then becomes injected or softened; it may also remain intact in several cases of chronic gastritis, whatever be the different degrees of intensity and duration of the latter. But at other times this cellular tissue is also attacked by inflammation, either singly and by itself, or simultaneously with the other portions of the cellular tissue which enter into the structure of the parietes of the stomach. There are cases in which it becomes attenuated like the mucous

membrane, and like it also, it ultimately disappears ; at other times it becomes softened, and changed into a liquid pulp; and then this submucous cellular layer, which on the one hand makes up for the want of strength of the mucous membrane, and on the other hand is continued into the interstices between the fasciculi of the muscular coat, then altogether ceases to exist under the form of a solid, resisting membrane ; in such a state of things the parietes of the stomach lose a considerable portion of the resisting power which they oppose to the different causes which tend to produce in them a solution of continuity. We then see the stomach easily ruptured after a great quantity of drink has been taken into its cavity, after more or less powerful contraction of the abdominal muscles, or in consequence of internal violence applied to the epigastrium.

Increase in the thickness and consistence of the cellular tissue is observed in many cases wherein the different tissues with which it is connected are in a state of chronic inflammation. This often happens with respect to the cellular tissue which connects, and at the same time separates, the different coats of the stomach. From the different degrees of thickening and induration of this tissue comes that species of alteration of texture which has been generally described by writers under the name of scirrhus of the stomach. According as the gastric cellular tissue becomes thickened and indurated, it deviates more and more from its normal appearance, and undergoes remarkable changes; but amidst these successive changes we may trace with the scalpel the different stages through which it passes in order to reach them. The most common change which it undergoes is that in which it presents itself under the form of a greyish, bluish, or dull white tissue, of a homogeneous appearance, without any traces of vessels, hard and friable under the scalpel. This is scirrhus *par excellence.* There is no objection to the use of this term, provided we rightly understand its import, and do not take it to signify a new tissue formed in the system, just as an entozoaire is, whilst it is in reality nothing but the change of a tissue from its normal state. In fact, where is scirrhus found ? Never in any other tissues but in the cellular tissue interposed between them. At the same time that the cellular fibre surrounding them is indurated and becomes scirrhous, those tissues may be changed in different ways ; they may ultimately be destroyed and disappear, but they do not really become scirrhus. This is very evident in the case of mucous membranes. On the other hand, observe indurated cellular tissue in different parts of the system, and you will be struck with a singular contradiction of authors, who consider a tissue to be scirrhus which is absolutely similar to another to which they invariably give the name of simple induration. Thus in a great number of chronic diarrhœas, the submucous cellular tissue of the large intestine becomes much more developed than natural; it is changed into a hard, whitish, and homogeneous tissue. If its increase of thickness is general and still inconsiderable, the only result is a certain rigidity in all the parietes of the great intestine, it is not yet scirrhus; but if the appearance of the tissue being in other respects absolutely the same, the increase in thickness is partial, and considerable enough to occasion a tumour, that which was a little while ago simple hardening of the cellular tissue, now becomes a new tissue, and is called scirrhus. Neither is this name given to the hardening so often observed in the cellular tissue either at the bottom of ulcers of the mucous membranes, or around old cutaneous ulcers, or along the course of a fistula, or around several white tumours of the joints, or in the vicinity of a caries, or necrosis. Yet, in these different cases the alteration called hardening of the cellular tissue presents an appearance identical in every respect with the alteration which in the stomach is called by the name of scirrhus.

Sometimes the submucous cellular tissue of the stomach presents not only the state of simple induration now in question (the scirrhus of authors); it is not only

hypertrophied,* but it undergoes a real change; it assumes the characters of the cartilaginous tissue, and more particularly of that imperfect cartilaginous tissue, still soft and inelastic, which exists at first in the embryo. However, a real transformation into cartilage is much more uncommon in the sub-mucous than in the sub-serous cellular tissue.

If instead of being greyish or bluish, as it were semi-transparent, the indurated cellular tissue of the stomach is of a dull white colour, and opaque; if instead of being devoid of vessels, it is traversed by vascular ramifications, more or less numerous, it is then no longer scirrhus; it is cerebriform or encephaloid tissue, said to be developed in the parietes of the stomach. For a long time I admitted this distinction; but I own that more extended researches have proved to me that it was all arbitrary. In the majority of cases we see the two tissues called scirrhus and encephaloid, confounded by insensible shades; and ultimately the latter appears, like the former, to be merely a form of induration which the sub-mucous cellular tissue of the stomach has undergone. It is obvious that in these different degrees of aberration of nutrition, this cellular tissue has many degrees of colour. And with respect to the presence or absence of vessels, do we not see that that is a circumstance purely accidental? If in the normal state the sub-mucous cellular tissue is traversed by vessels, it follows that these vessels must still exist in this same cellular tissue hypertrophied; but they will be more or less apparent according to the degree of sanguineous congestion which may exist in this tissue at the time of examination.

The presence or absence of vessels in the indurated cellular tissue it is then of some importance to remark, not for the purpose of establishing from it two kinds of morbid tissues, but in order that we may thus admit the greater or less activity of sanguineous congestion, and of inflammation in this same cellular tissue. Thence arise different symptoms which will not result from the presence of morbid tissues really different, but only from different degrees of inflammation of one and the same tissue.

At the same time that the nutrition of the gastric cellular tissue is altered, secretions of various kinds may, and in fact do, often go on there. Oftentimes in the midst of the indurated portions of this tissue, we find a kind of areolæ, or cells, containing a semi-liquid matter, like jelly, or honey; it is said that this is softened scirrhus; but that is assertion without proof; and if this matter is altogether similar to that which is found in a great many cysts with serous parietes, if it is found in certain compound tumours of the ovary, and the thyroid gland, where it is contained in distant cells, and where nothing around it resembles scirrhus; if it be observed within cartilaginous masses, where nothing else is seen except a gluelike matter arranged in cavities, whose parietes consist solely of cartilage; if, as I once saw in the pleura, a similar matter may form on a serous membrane, which evidently secreted it instead of serum; if, in a word, in these different cases, this so called scirrhus in the state of softening presents itself as a simple product of secretion, independent altogether of any previous scirrhus state, strict analogy will induce us to conclude that the matter resembling jelly, or honey, often found in the midst of the indurated cellular tissue of the stomach, is not this same tissue softened; but that in this, as in other cases already cited, it is a new product deposited there by secretion.

At other times, within this same indurated cellular tissue, another species of secretion takes place; namely, a liquid, opaque matter, sometimes of a dull white, sometimes of a greyish colour, oftentimes tinged with blood; it is, in a word, one

* Since the first edition, my opinion on the nature of scirrhus has been a little modified, and it will be seen, in my Pathological Anatomy, that scirrhus no longer appears to me to consist merely in a simple state of hypertrophy of the cellular tissue. There is also a process of morbid secretion in the part where it forms.

of those varieties of the morbid liquid designated by the generic term pus. Whatever may be the shades of its physical properties, it presents itself under two appearances; sometimes it is really infiltrated in the midst of the cellular tissue, which has become changed into what is called a scirrhous or encephaloid tumour; it may be forced from it by expression in the form of a drop; it sometimes has a tendency to unite into a single abscess (*foyer*), which increases in size, and at last occupies a part of the solid mass, within which it was secreted, and wherein it was first infiltrated. Then the cellular tissue in the midst of which this secretion of pus takes place, almost always presents numerous vessels, which pass in different directions through the tumour which it forms; the presence of these vessels, the secretion of this purulent liquid, prove the existence of a more active inflammatory process in this tumour; from henceforward another mode of alteration of nutrition comes on in the cellular tissue; after being hypertrophied under the influence of slight irritation, more remarkable for its duration than its intensity, it evinces a tendency to ulcerate; the vessels which pass through it are torn, and according to the size of these vessels, the result is either a mere reddish colouring of the purulent matter, or profuse and fatal hemorrhage.

Thus, in all this, there are three principal phenomena to be observed: 1st, an inflammatory state more severe than, and of a different nature from, that which had produced the hypertrophy of the cellular tissue: 2d, a purulent secretion: 3d, a tendency to the destruction of the tumour, according as the inflammation proceeds.

From the preceding facts and considerations, I think I may conclude, that among the tumours developed beneath the gastric mucous membrane, those which are generally considered as formed of what are called scirrhous and encephaloid tissues, in the crude state, are merely forms of hypertrophy of the sub-mucous cellular tissue; and with respect to the state of softening of these same tissues, I think that this name has been very incorrectly given to new products, which are deposited by the process of secretion within the previously inflamed cellular tissue. Other morbid secretions may still go on there: thus tuberculous matter is often found there in greater or less masses; sometimes, too, we find, either in single points or in patches of greater or less size, depositions of colouring matter of various hues, more particularly of a yellow or black (*melanosis*).

Hypertrophy of the gastric cellular tissue may be limited to the sub-mucous membrane of Bichat (the nervous coat of the ancients): this is the most common case. It may be continued in the portion of the cellular tissue, situate between the fasciculi of the muscular coat, which occasions whitish intersections between these fasciculi, to the consideration of which I shall return presently: finally, the increased thickness and consistence may exist principally in the sub-peritoneal cellular membrane. This latter case may take place either separately by itself, or simultaneously with induration of the other great portions of the gastric cellular tissue.

Hypertrophy of the gastric cellular tissue may exist over the entire stomach, the parietes of which are then harder and thicker than in the normal state, and do not collapse when an incision is made into them. This, however, is not the most common case, and in most instances the hypertrophy is partial. The point of the stomach most frequently affected is the pylorus, either merely the circumference of the orifice of communication between the stomach and duodenum, or all the pyloric portion of the stomach. This same hypertrophy has also been observed around the cardia, but much more seldom; again, it may exist through the entire extent of the substance of the stomach. When hypertrophy of the sub-mucous cellular tissue exists towards the pylorus, or towards the cardia, it terminates abruptly in the very great majority of cases, where the

duodenum and œsophagus commence ; it may, however, pass the boundaries of the stomach, and extend to one or other of these portions of the digestive tube ; in two cases where there was induration of the sub-mucous cellular tissue of the cardia, and surrounding parts, I saw this same induration exist in the lower third of the œsophagus, to such a degree as to produce a visible narrowing of this tube.

The muscular tunic of the stomach remains intact in a very great number of cases of chronic gastritis ; at other times it is changed, and one of the three following cases is then observed: this tunic either becomes hypertrophied, or atrophied, or it disappears completely over a greater or less extent of the stomach.

Hypertrophy of the muscular tunic, to which several authors, and particularly Dr. Louis, have paid considerable attention, is scarcely ever observed separate: such, at least, is the result of my observation. We observe it to be accompanied by a similar hypertrophy of the cellular tissue which lines its two surfaces, and of that which is interposed between the fasciculi which form it. These latter, when viewed after making a section of the stomach, appear formed of a more shining, and of a harder tissue than in the normal state ; if, as often happens, the cellular tissue interposed between them, participates in the hypertrophy, the following appearance is the result, which is so much the more deserving of remark, as it has given occasion to very extraordinary mistakes: white intersections, a species of septa, of a fibrous appearance and consistence, extend from the sub-mucous cellular tissue to the sub-peritoneal tissue, passing through the muscular tunic ; they divide the latter into a series of lobules, which form a slight projection before the white lines which separate them. The real nature of the tissue which constitutes these lobules may be at first easily mistaken, in consequence of the modifications of texture which the muscular fibre underwent in becoming hypertrophied, its texture having now become closer and more condensed. These lobules, and the intersections of a fibrous appearance which separate them, have been generally described as the type of the scirrhous tissue, and persons have come to this extraordinary result of describing in cancerous affections of the stomach a muscular membrane as no longer existing, and as succeeded by an accidental tissue of a new formation, when this same muscular membrane was, on the contrary, hypertrophied.

But at the same time that the different portions of the gastric cellular tissue increase in thickness and consistence, there are some cases where the muscular coat, far from being hypertrophied, becomes less and less perceptible, and undergoes a real atrophy. Then by careful dissection we find amidst masses of indurated cellular tissue merely some colourless fibres, combined in small fasciculi, separated by large intervals, where no trace of them is any longer observed. In other stomachs, and always with the same appearance of the cellular tissue, the muscular tunic has completely disappeared to a greater or less extent, and in its place we find only some indurated cellular tissue, covered externally by the peritoneum, and internally by a mucous membrane more or less changed. What do we see in these different cases? Increased nutrition of one tissue, and diminished nutrition of another, but nothing to warrant our admitting a tissue of new formation. It is, moreover, a very general fact in the animal economy, that by virtue of a sort of *balancing of nutrition*, the greater activity acquired by one organ or tissue in its vitality, in its functions, or in its nutrition, occasions a diminished activity in the organic or animal functions of other parts. And to cite some facts analogous to that now under consideration, observe in the limbs how according as a tumour increases in the midst of the cellular tissue where it first commenced, the muscles which surround or pass through it often lose their colour and size, and are reduced to a number of thin pale fibres. In a case which I saw some months ago, the fatty cellular tissue behind the globe of

the eye became so much increased, and at the same time indurated, that it filled the entire cavity of the orbit, and even pushed the eyelids forward: in the midst of the whitish and hard mass thus formed, the globe of the eye was found as it were buried, and very much diminished in size, and formed of a very small sclerotic, containing the different membranes and humours, but only in a rudimental form; the transparent cornea appeared but as a black point on the anterior part of the sclerotic. To the latter membrane the six muscles of the eye were attached as usual; but they were very small, colourless, rudimentary as the eye itself in which they terminated; a careful dissection was required, so as not to confound them with the surrounding cellular tissue. There then, as in the cases of chronic gastritis already mentioned, all the elements which enter into the structure of the organ were found; but being modified in their nutrition, they no longer possessed their ordinary proportions of volume.*

* The question has of late been very much discussed, whether scirrhus or cancer of the stomach, such as we have just described it, should be considered as one of the products of inflammation of this organ. It appears to us reasonable to admit that an inflammation may occasionally produce a cancer in the stomach, as it occasions one in the mamma in consequence of external violence. M. Bouillaud has published a case which clearly proves that cancer may become developed in the stomach after the ingestion of a certain quantity of nitric acid into this viscus. The subject of the case was a man thirty-four years of age, who had been addicted to various excesses, and had been suffering great domestic anxiety for some time. This person attempted to poison himself with nitric acid; he vomited a considerable portion of the poison immediately after swallowing it, and vomiting, burning thirst, and very high fever, became the chief symptoms during the first two or three days. The throat also was very painful, and deglutition very difficult; he was taken into the Charité; leeches were applied to the epigastrium and along the neck. It should have been observed, that at the time of his admission, on making him open his mouth, we perceived very evident traces of the action of the poison; in fact, the inner surface of the cheeks, the uvula, the velum palati, and fauces, were all covered with ulcerations of a greyish colour, bordering a little on yellow. The hoarseness of the voice, an acute pain along the œsophagus, which was increased during deglutition, induced us to think that the upper part of the larynx and the œsophagus were the seat of lesions similar to those described. By the use of leeches, cataplasms, and demulcents, the alarming gastric symptoms, such as nausea, vomiting, epigastric pain, had considerably diminished. The features however were very sharp, pulse small and wiry, and from ninety-two to ninety-six; at the end of two or three weeks he thought himself sufficiently well to leave the hospital, his only complaint then being the sensation of a tightness or constriction towards the middle and lower portion of the œsophagus. At his departure we recommended him to be particularly exact as to his diet, as his stomach still evinced considerable irritability. Unfortunately, however, he had a very voracious appetite, and notwithstanding our advice to him, he indulged it. In three weeks after he returned again to the hospital, and stated that three or four days after he had returned home, the pain originally felt in the region of the œsophagus and stomach, again attacked him, and also the nausea and vomiting, accompanied by colic and constipation. He was now very much emaciated; nausea, vomiting, sour eructations, and considerable swelling of the epigastric region, were the principal symptoms observed. Tongue pale, sufficiently moist, breath fetid, pulse from sixty-six to sixty-eight, and the temperature of the skin natural; fifteen leeches were applied; anodyne cataplasms to the epigastrium, pills of carbon and magnesia, castor oil, which was vomited instantly after being taken. Still the epigastrium became more and more tumefied, and the tumefaction presented this peculiarity, that it was much more marked in the left hypochondrium, where there existed a sort of tumour, which made the ribs project; this was situated obliquely, towards the umbilical region, forming a curve, with its convexity to the left. Percussion yielded to a dull sound, and there was evident fluctuation in the abdominal cavity. Pressure occasioned pain. The strength diminished every day, and the gastric symptoms remained nearly unchanged. There was evident effusion into the peritoneum, and also chronic gastritis. The acute pain of which the patient then complained in the abdomen, inclined us to suspect the existence of peritonitis. The pulse was now become very frequent and small, tongue frequently became dry, and the features were now sharpened. Calomel and opium pills were now given, a blister was applied over the epigastrium, mercurial frictions to the abdomen, after which, to our surprise, the effusion ultimately disappeared altogether. When the abdomen was now collapsed, we still observed a projection in the left hypochondriacal region. The nausea and some slight vomiting still continued, and the emaciation of the patient went on increasing. Notwithstanding the vomiting

Atrophy of the muscular coat of the stomach may also coincide with a similar atrophy of the other coats. Simultaneous atrophy of the mucous, cellular and muscular membranes, is sometimes carried so far, that over an extent, which is often very considerable, namely, over the great cul-de-sac, the parietes of the stomach present the appearance of a very delicate tissue, formed of peritoneum alone, on which some vestiges of the other membranes are perceived here and there. Such cases have been very accurately described by M. Louis.

The different morbid changes which have been just described, do not form with equal frequency at all periods of life. Nothing is more uncommon, for instance, than to observe scirrhous induration of the gastric cellular tissue before the age of thirty-five or forty. In this respect the following case seems worth reporting.

Case 4.—Scirrhus of the stomach in a person twenty-two years of age; first symptoms of the disease at the age of nineteen.

A man, twenty-two years of age, felt at the age of nineteen acute pains in the epigastrium. From this time his digestion began to become deranged; he was annoyed with acid eructations, and a disagreeable sensation of weight towards the region of the stomach, as soon as he took food: he lost flesh, and became emaciated; still he did not vomit. At length, at the end of two years,

the patient still called for solid food, and expressed an insuperable dislike for broths. He now again determined on leaving the hospital, having recovered some little strength, the abdominal effusion having disappeared, and he himself being dissatisfied at the small quantity of food allowed to him, when he expired suddenly about three months after he had swallowed the poison.

Post-mortem.—The stomach was of an enormous size. It filled not only the left hypochondrium, but all the left side of the abdominal cavity, as far as the iliac fossa. This was evidently the cause of the tumefaction observed during life. When an incision was made into the parietes of this immense pouch, there issued from its cavity a sort of thick fluid very like chocolate, exhaling a penetrating acrid odour. The quantity of the contents of the stomach may be estimated at nearly two litres. Notwithstanding this enormous dilatation of the stomach, its parietes were attenuated only in one part, particularly towards the great tuberosity. The pyloric portion of the gastric mucous membrane was of a bright red colour, owing to a very fine dotted injection uniformly diffused over the part. This portion, contrasted with that which lined the great cul-de-sac, which was brownish, slate-coloured, and much less injected. In this latter portion the mucous membrane was softened, and completely destroyed in several points. Very near to the pylorus we observed the remainder of two oval ulcerations, situate one before the other. Their bottom was smooth and surrounded with a thick edge, about one-fourth of a line in depth, continuous with this same bottom. The process of cicatrisation was very far advanced in these two ulcerations; it was more advanced in another ulcer which was at the distance of about an inch from the two preceding, having a rounded form and being an inch in diameter; the bottom of this ulcer, formed of injected cellular tissue, was surrounded by a sort of puffiness. The orifice of the pylorus formed a kind of funnel, the duodenal opening of which was scarcely a line in diameter. Around this orifice the parietes of the stomach were indurated and thickened, the induration and thickening being continued towards the duodenum to the extent of about one inch and a half. The thickness of the parietes of the duodenum and pyloric circle was from four to five lines. The surface of the section made in the indurated and hypertrophied parietes was of a greyish white, shaded with a bluish tint; the tissue of these parietes presented a lardaceous appearance, grated somewhat under the scalpel when cut into, and we there found, in a word, all the characters of scirrhus of the stomach. In the portion of the duodenum thus transformed into scirrhous matter, the presence of the mucous membrane was still recognised. The rest of the digestive tube presented no perceptible alteration. It was merely diminished considerably in size, and was really atrophied. There was a tolerable quantity of fæces of moderate consistence in the large intestine.

In the lower third of the œsophagus we observed several rounded depressions, the bottom of which was smooth and polished, surrounded by a small edge, which was from three to four lines in diameter. These depressions appeared to us to be cicatrised ulcerations. The œsophagæal mucous membrane was, in other parts, of a pale or greyish white.

he began to experience frequent nausea, and to vomit his food and drink from time to time. This vomiting, which at first occurred but rarely, became more and more frequent; it usually occurred three or four hours after meals. When the patient entered the Charité, he was in a frightful state of emaciation; he vomited almost every day; a well defined tumour was felt in the epigastrium, to the right of the xiphoid cartilage. The patient, after a short stay in the hospital, pined away and died. He had presented all the general and local symptoms of an organic affection of the stomach in its most simple form. The *post-mortem* examination justified our diagnosis. The pyloric portions of the stomach, and the pylorus itself, were found to have degenerated into a scirrhous mass, with an admixture of encephaloid matter not softened.

This case, which is principally important in reference to the age of the subject, presents other circumstances well deserving attention.

The nausea and vomiting did not commence till two years after the appearance of the other symptoms, such as deranged digestion, acid eructations, etc.; those lancinating pains in the epigastrium, which are either entirely absent, or very slight in so many persons, were always very severe in our young patient. Was the nervous system, as being more active in him in consideration of his youth, more seriously affected, and, consequently, did he feel the pain more acutely? Be that as it may, the absence of vomiting should not make us disbelieve in the existence of a cancer of the stomach; for considerable experience has taught us that vomiting is not an essential symptom of this disease; that it may not show itself, principally in those cases where the cancer attacking the body of the stomach, the two openings of this viscus remain free.

The bloodvessels of the stomach present some remarkable changes in chronic gastritis. For instance, we often find beneath the softened mucous membranes veins of a remarkably large size, evidently dilated, and which have become as it were varicose. The same change is observed in several other parts wherein an inflammatory process is going on for a long time; thus large varicose veins are often seen around old ulcers of the lower extremities. This dilated state of the veins sometimes continues for a longer or shorter time after the inflammation has ceased. In such cases it seems to be a phenomenon altogether passive, like dilatation of the veins of the conjunctiva after some cases of ophthalmia. But this dilatation may also be active, accompanied by thickening of the parietes of the vessel, and produced by a real process of inflammation, propagated from the mucous membrane to the capillaries, which pass through it, and from thence to the great venous trunks, which bring back the blood into the torrent of the circulation. The very interesting facts published by Dr. Ribes, have shown that in certain cutaneous inflammations, inflammation of the veins acts an important part; I have endeavoured to satisfy myself as to whether the same thing took place in certain cases of inflammation of mucous membrane, and more particularly with respect to the gastric mucous membrane. The following phenomena presented themselves in two cases; on laying open some large and dilated veins which ramified beneath the mucous membrane, which was red and soft in one case, and brown and hypertrophied in the other, I detected considerable thickening of their parietes, which opposed a sort of resistance to the scalpel, appeared as it were hard to the touch, and did not collapse after they had been divided. Now, we know that this thickening of the mucous parietes, with or without dilatation of their cavity, is one of the characters of chronic phlebitis. In another individual whose stomach was the seat of extensive ulceration, surrounded with soft and reddish vegetations formed at the expense of the mucous membrane, large veins were seen in great numbers around this ulceration; they were situated in the sub-mucous cellular tissue. One of them was remarkably hard, and its appearance resembled that of certain small veins of the extremities which have been obliterated by old clots.

It was distended and filled with a solid mass of dark red colour, like wine lees, mixed with a more liquid substance of a purulent appearance. On tracing this vein as near as possible to the ulcer, it was seen that the venules which went to form it were hard like itself, obstructed by solid matter, and resembling small nodosities.

The part which the bloodvessels of the stomach sometimes take in its inflammation may also be proved by other facts. These facts are those in which bloodvessels have been found ruptured, and more or less open at the bottom of an ulcer. What can be the cause of this rupture of the vessels? The same no doubt as that which has caused the successive destruction of the other tissues, and which occasioned the formation of an ulcer. Thus, the vessels which ramify on the surface of a pulmonary cavity, are perforated equally with those contained in the bands which pass through it. We know, besides, that in these vessels the adhesive is much more common than the ulcerative inflammation, whence it happens that their obliteration is much more common than their perforation. Does the same thing occur around and at the bottom of chronic ulcerations of the stomach? It is a fact worth remarking, that in some cases where vessels have been found with very open mouths at the bottom of one of these ulcerations, there had been no hematemesis during life, nor any blood effused into the stomach.

The lymphatic system of the stomach does not always escape the effects of chronic inflammation of this organ. In this system we have to consider, first, the vessels, secondly, the glands, into which these vessels enter, and from which they pass.

I no longer reckon those cases where, in different points of the intestine, I found lymphatic vessels filled with pus, or a substance of more consistence than ordinary pus, friable, and as it were of a tuberculous character, passing from an ulcer; these lymphatic vessels, thus distended, entered the mesentery, and sometimes disappeared there insensibly, whilst sometimes they might be traced as far as a gland. In several cases there was not only distension of the vessel by foreign matter, but there was also very evident thickening of its parietes, which had lost their usual transparence. Once only I found a similar state of the lymphatics in the stomach. One of these vessels, filled with whitish matter, passed out from an ulcer situate towards the middle of the great curvature of the stomach, passed all along this curvature, and ceased to be visible towards the great cul-de-sac.

The ganglions, which receive several of the lymphatic vessels of the stomach, and which exist, as every one knows, along its two edges, appear less liable to become engorged after acute or chronic gastritis, than the glands of the mesentery are after enteritis. However, in some cases of chronic gastritis, they are found to have become very much enlarged, and to form considerable tumours. Some of the phenomena and of the symptoms, which were supposed to depend on the stomach, have sometimes depended on these tumours. Thus, during life they may be appreciated by pressing it over several points of the epigastrium, and may present the same varieties of position, form, size, and mobility, as the tumours belonging to the stomach itself. At other times, it is the ganglions situate either along the diaphragmatic edge of the stomach, or principally behind the stomach, in the posterior epiploic cavity, which acquire an enormous size, at the same time that their tissue undergoes different species of alterations. They may then displace the stomach, push it forward, compress it between them and the abdominal parietes, and contribute as much to the difficulty of digestion, as chronic inflammation of the stomach itself. At other times the pylorus is found surrounded, compressed, actually obstructed by these ganglions, transformed into large tumours; thence arises vomiting, such as is observed when, for instance, considerable induration of the submucous cellular

tissue of the pyloric ring, and the parts around it, opposes the free passage of the food from the stomach into the duodenum.

Among the anatomical structures of the stomach, which have been, hitherto, too much neglected in the anatomical study of the diseases of this organ, we must place the nerves. There is no doubt but that more than one gastric affection is occasioned by alterations of them. But is this alteration appreciable by anatomical investigation? To this I can answer, that I have many times dissected with great care the pneumogastric nerves in their trunks and ramifications on the two surfaces of the stomach, as also the numerous branches which it receives from the great sympathetic; I have dissected them both in healthy stomachs, as also in those which presented most of the changes already described; and have, hitherto, been able to obtain but mere negative results; and in cases of morbid alteration of the stomach, which differed most widely from each other, I have not found any appreciable difference in the colour, size, or consistence of the nerves distributed to them. By this, I do not mean to say, that these nerves are always exempt from appreciable alteration; but as I have examined fifty-three bodies at the Charité, in reference to this subject, without discovering any thing, I think myself warranted in concluding, first, that these alterations are uncommon; secondly, that they are not necessarily connected with any of the numerous organic alterations with which the stomach may be affected. However, experience does not suffer us to doubt, that though the alterations of the nerves of the stomach are not in general of such a nature as that they can be appreciated by dissection, these alterations are still not the less real and frequent. There is no doubt but that, on the one hand, the numerous sympathies transmitted by the stomach to the different organs, are transmitted by means of its nerves, which are so remarkable for their distribution and their numerous connexions; neither is there any doubt but that, on the other hand, among the infinitely varying modifications of function which the stomach may present, and which simulate more or less completely the symptoms of acute or chronic gastritis, several depend on a vitiated influence of the nervous centres on the stomach; thence, in some persons, we observe various disturbances of digestion; in others vomiting; in others again epigastric pain, etc.

Chronic inflammation of the stomach, whatever be the form which it has assumed, may terminate in gangrene, but much less frequently than has been stated. The case wherein I have most frequently met this gangrene, is that where the stomach was the seat of an old ulceration, with fungosities around it and in its bottom. It was this ulceration itself which the gangrene had attacked; it was then found covered with a grey or blackish detritus, which was raised like pap by the scraping of the scalpel, and which exhaled a most fœtid odour. Towards the termination of life there was a sudden prostration of the strength; the countenance had rapidly assumed a cadaveric appearance; frequent hematemesis had taken place; this group of symptoms had probably coincided with the period when the ulceration of the stomach had commenced to be attacked with gangrene. Such is also the termination of several ulcerations and degenerations of the neck of the uterus; there is then also very often a great resemblance between the alteration of the stomach and that of the uterus. It is in this way also, that in more than one phthisical patient, gangrene comes to attack the parietes of cavities, which are found to become changed into a black and fœtid mass of corruption.

I have much more rarely found the stomach attacked with gangrene, when it had not been previously ulcerated. Sometimes, however, I have found portions of mucous membrane gangrenous, and changed into eschars over tumours formed by indurated sub-mucous cellular tissue.

The stomach, when attacked with chronic inflammation, undergoes, in its form and size, various modifications, which may be appreciated during life through

the abdominal parietes. I shall here consider chiefly the changes of size which it may present. The cases in which the cavity of a hollow viscus is seen to become very much enlarged beyond its natural condition, are numerous and varied, with respect to the causes which occasion this enlargement. Thus the dilatation sometimes takes place in consequence of an obstacle at the orifice, through which the liquids introduced into the cavity of the stomach should naturally pass out; this is sometimes the case with the heart, urinary bladder, gall-bladder, &c. The parietes of the cavity of these organs then either retain their natural thickness, or become hypertrophied, or are attenuated. Sometimes, without any obstacle opposing the free exit of the fluids, such a dilatation is observed to take place, the parietes of the cavity still presenting one of the three conditions which existed in the preceding case. In this case, all the hollow organs may be found, the heart, bladder, arteries, veins, bronchi, &c. Like to all these organs, the stomach may be very much dilated, may become large enough to fill all the abdominal cavity, whether there exists an obstacle at the pylorus, which is the most common case, or whether the parietes of the pyloric region present considerable induration of the cellular tissue with atrophy of the muscular coat, the pyloric orifice at the same time, far from being contracted, being found, on the contrary, wider than natural; or whether, in a word, as is the most uncommon case, the parietes of the stomach present no other change except injection, or softening of the mucous membrane.

Thus, then, of these three cases, there is but one in which the dilatation of the stomach, and the great enlargement of its cavity co-exist, with an obstacle to the free passage of food from the stomach into the duodenum. It is possible, however, as I shall have an opportunity of stating presently, that, in the second case, where the pyloric orifice is dilated instead of being narrowed, atrophy of the muscular membrane, at this part of the stomach, may be as powerful a cause, as some tumours of the pylorus, to prevent the free exit of food from the stomach.

The three following cases will furnish remarkable instances of dilatation of the stomach carried to an extreme degree.

In the first of these cases, there is an obstacle at the pylorus which opposes the passage of the food from the stomach into the duodenum; in the second, it is the latter intestine which is the seat of the obstacle; in the third, there is not an obstacle at any point to the free course of the food, and still, notwithstanding this absence of mechanical causes, the stomach had undergone enormous dilatation.

Case 5.—Great dilatation of the stomach, which filled the entire abdomen; induration of the parts of its pyloric portion, with atrophy of the muscular tunic, the usual size of the pylorus still remaining.

A woman, sixty-five years old, very much emaciated, began to evince, towards the month of June, the symptoms of an organic affection of the stomach; difficult digestion, alternation of voracious appetite and complete anorexia, acid eructations, nausea, frequent vomiting for several hours after meal, pain in the epigastrium.

These symptoms became every day worse. In the March of the following year she entered the Charité. She was then reduced to the last stage of marasmus. The stomach might be distinctly traced through the abdominal parietes; it evidently occupied the principal portion of the abdomen. Its colic edge rested immediately on the pubis; its diaphragmatic edge described a curve, the concavity of which looked upwards, and which, proceeding from the epigastrium, descended as far as the umbilicus, then reascended towards the right hypochondrium. She felt towards the part where the pylorus might be supposed to lie, an habitual pain, which at intervals became more severe. She vomited almost every forty-eight

hours a great quantity of brownish liquid. After vomiting the tumour formed by the stomach diminished, but did not disappear. The vomiting was without any effort, almost as a simple regurgitation. The patient was often desirous to get food; but she had scarcely swallowed a few mouthfuls, when she was satisfied; there then came a sensation of insupportable bitterness in her mouth. She continued passing a great quantity of gas by the mouth.

The appearance of the tongue was natural; thirst very moderate, stools scanty; pulse not at all frequent, and very weak; the skin dry, and not at all hot. The origin of the disease could not be referred to any appreciable cause. This woman sunk rapidly, and after being about fifteen days in the hospital, her features changed, her pulse ceased to beat, her extremities became cold, and she expired without a struggle, having retained the free use of her intellects to the last moment.

Post-mortem. The brain and lungs were sound. On raising the abdominal parietes, we perceived the stomach occupying all the entire cavity. It descended at first vertically from the epigastrium to near the left iliac fossa; it then turned obliquely from left to right, and from above downwards towards the right iliac fossa; within this space the great curvature was concealed by the pubis, and rested on the uterus; it then ascended towards the right hypochondrium, where it was continued with the duodenum. The remainder of the intestinal canal was concealed by the stomach, with the exception of some convolutions of the small intestine, which occupied the right flank, and of the sigmoid flexure of the colon. The stomach contained an enormous quantity of brown fluid, similar to that which had been vomited during life. The internal surface was every where perfectly white, but the mucous membrane was also very soft on every part. To the extent of four fingers' breadth on this side of the pylorus, this membrane no longer existed.

Where the solution of continuity of the mucous membrane commenced, it formed an irregular whitish swelling (*bourrelet*). The bottom of the ulcer so formed, consisted of cellular tissue, which was four or five times, at least, its natural thickness, and was divisible by the scalpel into a tissue of a pearly white appearance. The free surface presented a blackish grey colour. Over this same extent no trace of muscular fibre was any longer observable. The pyloric aperture was still large enough readily to admit the extremity of the index finger. The remainder of the intestinal canal was healthy.

How are we to explain, in this case, the accumulation of food in the stomach, and its enormous distension, the pyloric orifice being free, and even larger than natural? This orifice, when observed in the dead body, is really closed, and a certain resistance must be overcome in order to introduce the extremity of the little finger into it. If we examine it in the living body, we also see that it remains habitually closed, like the sphincters of the bladder and rectum. But during digestion, and when the chymified food has passed into the duodenum, a new phenomenon presents itself. The muscular fibres of the stomach present a very manifest motion of contraction, which, commencing towards the middle of the body of the stomach, is continued as far as the first curve of the duodenum; this contraction changes the state of the pylorus, overcomes its resistance, which is entirely passive, so that the muscular contraction which has been just described, is at least one of the principal causes, if not the only one, which propels the chyme into the duodenum. Hence it follows, that if in the pyloric portion of the stomach there be no longer any fleshy fibres, one of the most powerful causes of the expulsion of the food ceases to act, and the latter passes into the duodenum, not without considerable difficulty. Such is the mode of accounting for the fact in question, supposing it to be granted that the enormous dilatation of the stomach recognises for its cause the distension it suffers from the unusual accumulation of a great quantity of food. But is this

cause as powerful as has been said? We may remark on the one hand, that such a dilatation may take place without there being any appreciable cause to prevent the passing of the food into the duodenum. (See the next case.) And on the other hand, it may be observed, that very considerable obstacles often exist at the pylorus without the stomach being perceptibly dilated.

Case 6.—Cancer of the duodenum; cicatrix in the stomach; dilatation of the latter organ, the colic edge of which almost touches the pubis.

A woman, seventy-four years of age, entered the Pitié on the 1st of November, 1832. She had been for a long time labouring under indigestion, and vomited from time to time. She remained for twelve days in the hospital; during this time she did not vomit; her tongue was constantly dry, and of a smooth, uniform red appearance. She gradually became weaker, and died.

Post-mortem. The stomach had attained an enormous size. It occupied almost the entire abdomen; its colic edge was separated from the pubis only by a space of about two inches. The great *cul-de-sac* adhered to the abdominal parietes by old cellular bands. It contained about a litre of a greyish liquid. Its mucous membrane was everywhere pale, and of good consistence. Beneath it the cellular tissue was remarkably thick, and the muscular coat was evidently hypertrophied. Thus the dilatation of the stomach had not been purely passive. Towards the great *cul-de-sac* an extraordinary puckering of it coats was observed: the fasciculi of the muscular membrane terminated as so many radii in a white and thick point, above which the mucous membrane was, as it were, puckered. This change of structure resembled the cicatrix of an old ulcer.

In the duodenum, two inches beyond the pylorus, there existed a cancerous vegetation which went all round the intestine like a ring; it was, as it were, a second pylorus, which afforded but a very narrow passage to the contents of the intestine. The ductus choledochus, which was considerably dilated, opened into this cancerous mass.

In the jejunum and ileum a general slate-coloured tint of the mucous membrane was observed. The termination of the ileum and the large intestine were filled with a blackish-grey substance, resembling clay. Reddish bands appeared on the internal surface of the colon. The tissue of the liver was firm, and of a bright red colour; the spleen was small and dense. The left kidney contained some small black calculi, lodged in cysts, within the cortical substance; around them was observed a matter equally thick, but soft. Two other small calculi were found in one of the calices.

Case 7.—Very considerable dilatation of the stomach, the colic edge of which touched the pubis, without any other alteration of its parietes except a little softening of the mucous membrane towards the great cul-de-sac.

A woman, twenty-three years of age, who had always enjoyed good health, left the provincial town in which she had resided in consequence of a reverse of fortune, and came to reside with her family to Paris. Her health soon became perceptibly changed, her appetite became diminished, her digestion became difficult, and towards the month of February, 1821, after a fright which occasioned long continued syncope, she began to vomit both her meat and drink. She usually did not throw them up till several hours after swallowing them; however, she became emaciated, and weakened gradually.

Leeches were applied over the epigastrium; magnesia, and various antispasmodic medicines were given. From the month of December the vomiting became more frequent, the strength diminished rapidly, and the menses stopped. From this time she gave up her occupation. She entered the Charité, February

14, 1842, and presented the following state; last stage of marasmus, no complexion; vomiting of both solid and liquid food, more or less, immediately after its being taken into the stomach; slight pain in the epigastrium, which was soft and presented no perceptible tumour, neither did any other part of the abdomen present any; appearance of the tongue natural, habitual constipation, pulse very weak and slightly frequent, skin dry and not at all hot, breathing free.

This patient did not present any new symptom up to the commencement of March; the demulcent drinks given to her were all rejected; neither could she retain the light food allowed her from time to time. On the 12th of March the pulse became accelerated, the tongue dry, and she died on the 14th of March.

Post-mortem. — A little serum was found in each lateral ventricle. The pleuræ costalis and pulmonalis were connected by long and dense cellular bands. The stomach, which was very much dilated, covered most of the abdominal viscera; its colic edge touched the pubis; it was the great cul-de-sac that was most dilated. The cavity of the stomach was filled by a greenish yellow liquid; its internal surface presented a slight rose tint, marbled in some points: towards the spleen it was whiter; also a portion of mucous membrane, about the size of the palm of the hand, was very much softened, and might be raised like a pap by slight scraping, in every other part it was of the natural consistence. The parietes of the stomach were in general thin and readily torn; the muscular layer was very much attenuated. The small intestines, which were very much contracted, like a dog's intestines, were almost entirely lodged in the cavity of the lesser pelvis; their internal surface was pale. The ascending colon occupied its ordinary place. The transverse colon had followed the great curvature of the stomach, and was situate behind it; its internal surface presented to the extent of about four fingers breadth a violet red colour, residing in the mucous membrane, which was a little thickened. Some red patches of the same kind were observed in the descending colon; in every part this intestine was very much contracted. The sigmoid flexure of the colon, and the rectum, which presented no alteration, were filled with hard fæces. Thus there was no diarrhœa, though several portions of the large intestine were evidently inflamed. The liver, which was considerably enlarged, extended on the left as far as the spleen; it pressed the diaphragm as far as the fifth rib. Inferiorly it passed a little beyond the edge of the false ribs; its tissue was healthy. When the obstacle to the passage of its contents exists in any other point of the intestine, we equally see the portions of the digestive tube situated above the contracted part more or less dilated. Instances of this will be seen in the two following cases, the details of which we thought it right to present, in consequence of the interest which they possess in other respects also.

Case 8.—Scirrhous degeneration both of the parietes of the stomach and of the colon—Symptoms of intestinal strangulation—Considerable dilatation of the portion of the large intestine above the contraction—Depression of one of the cerebral hemispheres by a fibrous tumour.

A woman, forty-eight years of age, entered the Charité on the 6th of October. For about twelve months previous to this time her health began to become deranged. Her digestion was often painful, though she did not vomit; she frequently experienced the most complete disrelish for food of every kind; since the same period she scarcely ever had an alvine evacuation, except by means of lavements. She had gradually lost flesh and strength; still she continued her ordinary occupation; but on the 20th of September her abdomen became painful and tympanitic; on the following day obstinate constipation set in, which could not be overcome by lavements; the latter was passed immediately after being taken, and brought nothing with them. The constantly increasing size of the abdomen alarmed the patient, and determined her on entering the hospital.

When we saw her for the first time her countenance was pale, and her fea-

tures sharp. She complained of general pain over the abdomen, which was more severe in the right flank, and was increased by pressure. The abdomen, which was enormously distended, sounded like a drum when struck. The patient began to vomit for the first time during the night. The appearance of the tongue was natural ; a considerable quantity of gas was passed by the mouth, none by the anus. There had been no alvine evacuation for the last seven or eight days. The breathing was short and hurried ; pulse small and frequent ; skin not hot. The tympanitic state of the abdomen, the total absence of alvine evacuations, and the vomiting, seemed to M. Lerminier to indicate the existence of internal strangulation, or at least of some obstacle to the passage of the food towards the termination of the large intestine. The abdomen was covered with emollient fomentations, and with embrocations of camphorated oil of camomile ; a draught of oil of sweet almonds was given ; a lavement of three ounces of castor oil, and warm baths. In the course of the day the draught and ptisan were vomited ; the lavements were expelled as soon as given : no stool. The three following days these symptoms still continued ; the tympanitic state of the abdomen still increased ; the breathing was become more difficult. *Purgative lavements of senna and sulphate of soda.* On the morning of the 11th of September the countenance was of a violet colour ; features changed, imminent suffocation ; coldness of the extremities ; pulse thready ; intellects perfectly clear ; tongue natural ; vomiting of yellow, acid matters during a great part of the night. *Lavement consisting of an infusion of two drams of tobacco leaves ; warm bath.* This lavement equally ineffectual as the former. In the course of the day the dyspnœa increased : towards four in the evening, just when the patient was leaving her bed in order to go into the bath, she expired suddenly.

Post-mortem, 17 hours after death. — The middle portion of the upper surface of the left cerebral hemisphere presented a deep depression, which contained a rounded tumour, about the size of a nut, presenting all the characters of the accidental fibrous tissue, and developed between the dura mater and the arachnoid. The cerebral substance, forming the parietes of this cavity, was healthy. Nothing remarkable in the remainder of the encephalon. The right cavities of the heart were distended by a dark, semi-liquid blood. The lungs were engorged, and of a brownish colour. The capacity of the chest was very much diminished ; the upper surface of the diaphragm was raised to the level of the fourth rib ; no gas escaped into the peritoneal cavity. The large intestine was enormously distended ; it concealed almost all the rest of the viscera ; one would have said it was the large intestine of a horse. This prodigious dilatation was continued as far as the sigmoid flexure of the colon ; there the intestine became suddenly contracted, and retained a small calibre as far as the anus. The little finger, when introduced into the place where the contraction commenced, passed it with difficulty ; two inches lower the intestine resumed its ordinary size. It was soon ascertained that this obstacle to the free passage of the finger was owing to the presence of a fungous tumour, which went round the intestine like a ring ; its edges were raised like those of some species of mushroom ; the cerebriform degeneration of the mucous membrane and of the cellular tissue subjacent to it, had given rise to it. Below it the intestine was white and empty. Above it contained a great quantity of gas, and of liquid greenish matter. The mucous membrane was slightly injected through the entire extent of the large intestine. We were not a little astonished to find on the posterior surface of the stomach, nearly at an equal distance from the cardia and pylorus, a second cancer, entirely similar to that of the intestine. It was a little broader than a five-franc piece. The mucous membrane of the remainder of the stomach was healthy. Five or six small rounded bodies, each the size of a filbert, and of a stony consistence, formed so many appendages around the body of the uterus, to which they held by a cellular prolongation.

The tympanitic state of the abdomen, and more or less obstinate constipation, are no doubt rare phenomena in persons whose colon or rectum are cancerous. They existed for a long time in this patient. But it is, I think, extremely rare to see these symptoms suddenly become so severe as to similate with those of strangulated hernia. They can only be accounted for by admitting that the tumour, after having for a long time made imperceptible progress, suddenly assumed a sort of acute course in its development; all the phenomena observed in our patient may thus be perfectly accounted for. Death was the result of the constantly increasing difficulty of breathing. When we consider how little air the lungs could still receive towards the termination of life, we shall not feel surprised that a slight movement, by accelerating the circulation, was sufficient to complete the asphyxia. The increased quantity of blood which flowed to the lung at this moment being no longer proportioned to the quantity of air which might act on it, sudden asphyxia must be the result of this disproportion. The more acute pain which the patient referred to the right flank seemed to indicate that there also the obstacle or strangulation existed. If it had been possible to ascertain that the lesion was situated so close to the rectum, one might have tried the introduction of a sound with advantage. Let us now direct our attention to the other lesions discovered. First we find the instance of an ulcerated cancer of the stomach, the existence of which was indicated only by a little difficulty in digestion, and by frequent returns of anorexia; the occult nature of this cancer was conformable to its state. How was it that a tumour so large as that seated in the cerebral membranes, and which had made a considerable depression in the brain, did not indicate its existence by any marked symptom? We shall probably find the cause of this absence of symptoms both in the slowness with which the tumour was developed, and in the portion of the brain which was compressed by it. A case similar to the preceding, with respect to the lesion of the intestine, and the symptoms occasioned by it, has been reported by Dr. Baillie, in the Medical Transactions, vol. i.

Case 9.—Symptoms of typhoid fever; all at once signs of internal strangulation, and death—Twisting of the intestine around the mesentery, towards the commencement of the jejunum—Remarkable dilatation of the duodenum.

A man, twenty-seven years of age, of a strong constitution, frequently experienced abdominal pains from his earliest infancy; he often had diarrhœa and bilious vomiting.

On the 29th of June, after having walked a great deal during the day, and having become chilled, he was seized at night with profuse diarrhœa, which continued on the following days. On the 6th of July he felt unusually hot, and perspired in the evening, which symptoms, as also the diarrhœa, continued till the 9th of July; he then entered the Charité, and presented the following state:

Air of stupor, sub-orbital pain, face pale, eyes heavy, tongue covered with a whitish thick coat; thirst, anorexia, bad taste in the mouth; ten stools within the last twenty-four hours, like water coloured yellow; abdomen soft and free from pain, pulse moderately frequent (barley ptisan, with tartaric syrup, linseed lavement). On the three following days the prostration went on increasing; the pulse, which was scarcely frequent in the morning and during the day, became a little accelerated in the evening; at the same time the temperature of the skin was raised; the purging neither diminished nor increased. (Same prescription.)

On the 13th the tongue became dry, the frequency of the pulse increased, numerous spots of a pale rose colour, of the breadth of a lentil, slightly projecting above the skin, sensible only to the touch, appeared on the anterior part of the chest.

On the 14th they extended to the abdomen. The purging was considerably diminished (three stools). There was almost complete apyrexia; but the tongue retained its dryness; the teeth began to be encrusted; the prostration was increased; the skin of the face assumed that earthy tint which accompanies and characterises the adynamic state. (Blisters to the legs.)

15th and 16th. Same state (demulcent ptisan, emollient lavements). 17th. Delirium in the night. The blisters on the legs were dry; a new one was placed on one thigh.

18th. There was still delirium in the evening. On the morning of the 19th we found the patient better than on the preceding days. The tongue was moist and looked well. Only two stools had been passed since the last twenty-four hours. His intellects were clear. His strength seemed to rally; temperature of the skin was natural; pulse but 65. We had scarcely left the patient in this improved state, when he was seized all at once with a pain in the abdomen, so severe as to make him scream; he referred the seat of it principally to the parts around the umbilicus; pressure neither increased nor relieved it. This pain lasted for an hour, when we saw him again. The features were very much altered, and indicated the greatest anxiety; still the pulse was not accelerated. A half an hour after, towards ten o'clock, the pain still continued, when the patient vomited spontaneously about a pint of bilious matter; he was instantly relieved. Towards noon the abdominal pain was again renewed with great violence. At four o'clock a second vomiting took place, similar to the first with respect to the nature and quantity of the liquid; the pain disappeared as after the former vomiting. In the evening we found the patient calm and tranquil, and entirely free from fever. He had been three times at stool since morning; in the night he had a little delirium.

On the morning of the 20th he suffered no pain, but his spirits were very much cast down; stupor very great; the spots were effaced, they were pale, less numerous, and no longer projected above the skin. Tongue red at the apex, and clammy; pulse still slow and skin cool. (Infusion of quinquina, with tartaric syrup. Gum potion, with half an ounce of extract of quinquina; a little wine. Aromatic fomentations to the abdomen; linseed lavement; rice-water for drink.) At two o'clock in the afternoon the abdominal pain reappeared; at six o'clock he vomited a great quantity of green bile; he felt relieved. At eight at night the pain reappeared, but was more moderate; the skin was moist and cold; the pulse, which was very small, had become frequent. At nine o'clock, though the temperature of the skin was not raised, he complained of feeling an intolerable heat in every part of him; he threw off the bed clothes. Since morning he had had but one stool after the lavement; at night he was not delirious.

On the 21st the belly was generally painful on pressure, particularly a little above the umbilicus; the pulse was very small and scarcely 60. A few pale spots were scattered over the abdomen. Suddenly an acute pain came on, which lasted, however, for only a few minutes. At eight o'clock the pain again increased; it ceased, or, at least, was very much diminished, after a copious vomiting of green bile; two pints, at the very least, were expelled from the stomach at once. The quinquina was stopped. (Tamarind whey, barley ptisan, emollient lavement, aromatic fomentations, two blisters to the legs.)

During the day the pain and vomiting were several times renewed. In the night he became delirious. On the morning of the 22d his voice was quite gone, he was extremely weak, his countenance was pale and cadaverous. The tongue was moist and coloured with bile. The abdomen was not tense. We touched it without at first occasioning any pain; but on further pressure an acute pain was instantly felt. The nose, hands, and feet were cold. He

vomited several times during the day; he had two stools. (Blister over the epigastrium, seltzer water, anti-emetic potion of Riviere.)

On the 23d the surface of the entire skin was cold. He vomited frequently. On the 24th the pulse was thready and scarcely perceptible. His skin was now deadly cold, still his intellects were quite clear; he was still strong enough to raise himself up on his elbow. On the evening of the preceding day he got out of bed to go to stool; he felt no abdominal pain for the last twelve or fifteen hours. He had some hiccup during the night. He died in the evening.

Post-mortem, 48 hours after death. — The external surface of the body was scarcely colder than during the last twenty-four hours before death. A little limpid serum was found in the lower part of the lateral ventricles. The heart and lungs presented nothing remarkable.

Abdomen. — The stomach, which was distended with a great quantity of green bile, touched the umbilicus with its great curvature; the mucous membrane, which was of a grey slate colour in the splenic portion, and of a rose tint in the pyloric portion, was rather soft in every part; but had it not been subjected to a sort of maceration by the great quantity of liquid which was in contact with it for more than forty hours? The duodenum had become so much enlarged, that it readily admitted the thumb into it. The jejunum, at its origin, was rolled on itself several times, and was embraced by the mesentery, which pressed it strongly like a cord, whilst it, in its turn, likewise compressed the mesentery: the latter was rolled, like the intestine, several times on itself from right to left; on turning it three times from left to right, the mutual strangulation of this membrane and of the intestines was removed.

The superior mesenteric artery and vein resembled a very tense cord from which the strangulated parts seemed as it were suspended; lower down these vessels were, as it were, included in the strangulation; all the rest of the small intestine also, nourished by these vessels, presented a very deep brown colour, arising from the mechanical stagnation of the venous blood in its parietes; the latter still retained their ordinary consistence: the parietes of the large intestine were white. Beneath the strangulated parts a tumour existed about the size of an ostrich's egg, of a brownish red colour, formed by some lymphatic glands and sub-peritoneal cellular tissue considerably engorged. The mucous membrane of the small intestine, which was of black jet colour, presented an immense number of miliary granulations; some were also found, but in less number, on the mucous membrane of the large intestine. The liver, which was of the ordinary size, was readily torn; the gall-bladder contained a small quantity of yellow bile. Nothing remarkable in the other viscera.

When the patient who forms the subject of the preceding case entered the Charité, he presented nothing but the ordinary symptoms of continued fever; but, what was very remarkable, whilst the prostration, stupor, dryness of the tongue, the delirium which returned every night, and the typhoid eruption indicated a severe disease, the circulation remained in its natural state, except that two or three times we found the pulse a little frequent and the skin a little hot. The ancients had noticed this rare pulse in malignant fevers, and they considered it as a most unfavourable symptom.*

However, most of the bad symptoms had disappeared, and a favourable prognosis might be formed, when the symptoms of intestinal strangulation appeared. We have carefully noted, in the progress of the case, the extraordinary intermissions of the abdominal pains, and their diminution after each fit of vomiting. We have remarked the almost cadaveric coldness of the entire cutaneous surface for more than twenty-four hours before death, at a period when the patient was

* See *ante*.

still strong enough to raise himself up and leave his bed. The circumstance of the abdomen still remaining soft, the character of the pain which was not increased by pressure, distinguished the symptoms of this strangulation from those of a peritonitis.

We shall not attempt to account for the mode in which those strange and almost inextricable knots of the small intestine around the mesentery occasioning their mutual compression could have been formed; we can scarcely account satisfactorily for simple intestinal intus-susceptions; but we may ask whether the patient did not carry about him an almost congenital predisposition to the strangulation of which he died? Thence probably the frequent abdominal pains, and the vomiting to which he was subject from his infancy. Is it not to the presence of a partial obstacle to the passage of its contents, which must have existed for a considerable time back, that the enormous size of the duodenum was owing? Could this intestine have acquired such enormous dimensions in a few days? This we deem so much the less probable, as its valves were not even effaced. The bile collected in it, as in a great reservoir, and then passed into the stomach, from which it was expelled by vomiting.

ARTICLE II.

SYMPTOMS OF CHRONIC GASTRITIS.

These symptoms are of three kinds: some are merely local, and consist in a greater or less disturbance of the functions of the stomach; others arise from the alteration of the general progress of nutrition, an alteration which is the necessary consequence of the gastric affection; others again are purely sympathetic.

Here an important question presents itself: are the extremely varied lesions which we have described in the two preceding articles, each indicated by special symptoms? We have no hesitation in answering in the negative? With the exception of some circumstances, which are the mechanical result of the obliteration of the cardia or pylorus by a tumour, the same phenomena most commonly indicate during life these organic alterations of form and structure which differ so much from one another.

Thus, for instance, it is a great mistake to suppose, that what are called lancinating pains accompany more particularly the lesion usually designated cancer of the stomach. On the other hand, we think that we may infer from a considerable number of cases, that such pains are but very seldom the result of this affection. Then the existence of lancinating pains is one of the circumstances which we took care to point out in the person who forms the subject of the fourth case. It appears to us very probable that the writers who have given these pains as a characteristic sign of cancer of the stomach, admitted them only by analogy with that which they observed in cancer of the mamma. Among the persons in whom we detected, after death, the existence of the different forms of gastric cancer, whether scirrhous or encephaloid induration of the tissues subjacent to the mucous membrane, or fungous vegetations of this membrane, or ulcerations with destruction of the tissues, the bottom of the ulcer being formed by the liver or pancreas; of these, I say, some had never complained of pain in the epigastrium; in others it was merely a sensation of con triction or habitual weight towards this region; at other times it was produced only by pressure: whilst at other times the epigastrium might be pressed with impunity. In several instances the pain was felt only when food was taken into the stomach.

If now we compare the patients labouring under what are called cancerous

affections of the stomach with those who had only what is recognised as a chronic gastritis, we shall not find either in the character or intensity of the pain any sign by the help of which we could distinguish with certainty the latter disease from the former.

Shall we seek more certain distinguishing signs in the varied disturbances of digestion? We shall not find any thing more satisfactory. Thus, to cite the two extreme cases, we have seen persons who, during life, had no other sign of gastric disease except anorexia, and at most a little constriction or uneasiness in the epigastrium after they had eaten, and in whom we found immense cancerous ulceration in the interior of the stomach, or else extensive scirrhous induration of its parietes. On the contrary, we have seen other individuals, who experienced a much more painful sensation in the epigastrium after eating, who vomited either sour fluid in the morning and at different periods of the day, or their food, who had frequent acid eructations, and yet, in these, what did we find? Nothing but red, brown, slate-coloured thickening of the mucous membrane, or else greater or less softening of this membrane.

Will the nature of the vomiting throw more light on the matter? It has been said that hematemesis were exclusively connected with the existence of fungous vegetations, of cancerous ulcers, of softened encephaloid masses developed within the stomach. It has been said that these same lesions also produced that vomiting resembling soot or coffee-grounds, which is observed rather frequently, and in considerable quantity, in persons labouring under a chronic affection of the stomach. No doubt such vomiting occurs frequently when the stomach is the seat of one of those lesions just mentioned; but it may also present itself with very different morbid changes, and thence it no longer possesses any value to characterise any of them. We have accordingly ascertained its existence; 1st, in patients whose stomach presented, in its mucous membrane, no other change than slight injection or softening, with greater or less schirrhous induration of the subjacent tissues; 2dly, in others, whose gastric mucous membrane was hypertrophied with grey or brownish colouring, the subjacent tissues being intact.

With respect to the general symptoms, whether those that are sympathetic, or those that result from the disturbance or total abolition of the process of chymification, they do not appear better adapted than the local symptoms to distinguish with certainty the different organic alterations of the stomach from one another. It must, however, be admitted, that the pale yellow tint of countenance, emaciation, and wasting away, are particularly marked in the case where the stomach is the seat of a scirrhous or cancerous affection properly so called.

From these observations it follows that, with the exception of the case where a tumour is felt through the abdominal parietes, there exists no certain sign to distinguish what is called, in ordinary medical language, a cancer of the stomach from that which is called chronic gastritis.

Thus with respect to their symptoms as well as their anatomical characters, the different forms of chronic gastritis have a constant tendency to become confounded.

All this being laid down, let us direct out attention to some of the symptoms which accompany chronic inflammation of the stomach, and which indicate its existence with more or less certainty.

The tongue, in this affection, is far from presenting always the same appearance. First, there is a certain number of cases in which it does not at all deviate from its normal state; and, what is remarkable, this happens precisely in those cases where the stomach has become the seat of the most serious organic alterations.

It is principally, in fact, in the cases of cancerous degeneration of the stomach, that we have had an opportunity of observing this continuance of the tongue in its normal state; it is often, in such cases, remarkably pale.

With the exception of this case, it very seldom happens that in chronic gastritis the tongue is not more or less changed.

It very seldom happens that it presents through its entire extent that bright redness with smooth appearance of its surface which we have above seen frequently coincide with acute gastritis. We have, however, observed some persons who, for several months in succession, presented such a state of the tongue; they had all the other signs characteristic of chronic gastritis. But this appearance of the tongue alone should not suffice to cause us to admit its existence: from time to time persons are met with who, without experiencing any disturbance in their digestive functions, have, like the preceding, a red and smooth tongue. The upper surface of this organ is at the same time acutely sensible. They at first experienced pain in the tongue; then the epithelium covering it became detached, and the tongue then assumed that red and smooth appearance, and retained it for a very long time. This is simply superficial glossitis, which may exist without any complication of gastritis. The acute sensibility now noticed does not ordinarily take place when the redness of the tongue is connected with irritation of the stomach.

It is very common to find in persons affected with chronic gastritis, the tongue covered with a thick coat, either white or yellow, sometimes confined to its centre, sometimes extending over all its surface. At times nothing else is observed but this coat, and then the appearance of the tongue is similar to that which it presents in cases where the affection of the stomach is no longer a gastritis, and yields to means which would have infallibly exasperated the latter disease if it had existed. But most frequently when there is really gastritis, the coat which covers the tongue is not uniform; it is as it were marked by a great number of red points which show what the state of the mucous membrane is beneath it, and which become more prominent and more numerous towards the apex of the organ.

There are other persons likewise labouring under chronic gastritis, in whom careless examination at first detects nothing unusual on the upper surface of the tongue. But, on viewing it more closely, we find that towards its apex it is roughened by a great number of small red granulations, which appear to be so many papillæ more developed and more injected than in their natural state. These granulations do not always remain in the same state: at times they are very prominent, very red, and very numerous: at other times they are less apparent, paler, and fewer in number. Their development is always in the direct ratio of the intensity of the gastric irritation. Among the persons who present this particular state of the tongue, some have a stomach habitually sick; others have rather what is called a delicate or irritable stomach; they are forced to confine themselves to a certain regimen; they cannot, without great inconvenience, allow themselves the least excess in eating or drinking. This state of the tongue appeared to us more common in the gastric irritations of young persons than in those of persons more advanced in life. It is often observed in young females with a pale complexion and a weak constitution, whose stomach is habitually deranged; its existence may prevent one from considering and treating as nervous the symptoms they present on the part of the digestive organs. We have known several families, all the children of which presented this unusual development of the papillæ towards the apex of the tongue; in all these there were at the same time other signs of gastric irritation. In one of these families the mother and her four daughters presented this particular appearance of the tongue, and all five had a very delicate stomach.

It is almost only in acute gastritis that the tongue becomes remarkably dry;

in some cases, however, of chronic gastritis it no longer retains its natural moist state; it is clammy, and even in the cases where it is moist during the day, it is not uncommon to find it dry on awaking; patients express this by saying that in the morning their tongue is like a file; sometimes this state is habitual to them, sometimes it appears only when their state of gastric irritation becomes exasperated.

There are times when the chronic gastritis becomes more acute; then the tongue assumes a redder tint, or else it is covered with a thick white coat studded with a great number of red points. Sometimes again, more particularly when the system is already very much debilitated by the slow progress of the chronic affection, we perceive a diphtherite supervene which attacks the tongue and all the inside of the mouth. Though, in a great majority of cases, this complication portends a rapidly fatal termination, we have, however, sometimes seen the tongue and mouth gradually throw off the coat with which they were covered, and the gastric irritation, becoming less acute, resume its original course.

The sympathetic connexions between the mouth and stomach occasionally manifest themselves by other phenomena. Thus, in a considerable number of persons who suffer habitually from the stomach, each exasperation of the gastric irritation is constantly indicated by an eruption of aphthæ. In others, the salivary glands become painful and swollen, and profuse salivation sets in. This symptom is seldom permanent, and most frequently it assumes an intermittent form, every time the gastric irritation becomes more intense.

The sensation of thirst and that of hunger presents numerous modifications in chronic gastritis.

Thirst is often absent. In others it becomes severe only at intervals, when the inflammation of the stomach passes to a more acute state. Other individuals, on the contrary, are habitually distressed by thirst, which obliges them to drink frequently between meals. This habitual thirst is usually connected with a somewhat intense degree of gastric irritation. We know a lady, who is about forty-four years of age, who has been labouring under chronic irritation of the stomach for more than twenty years, and has not passed a single day since that time without being tormented by a degree of thirst, which proves the most painful part of her disease.

In some this sensation of thirst is so severe, that they every day swallow a prodigious quantity of drink. This great thirst brings with it a very abundant flow of urine, a secondary diabetes, which is cured by removing the morbid state of the stomach, which is the real cause of it.

The appetite remains good in several cases of chronic gastritis, and patients frequently have need of the utmost determination to resist the very keen desire which forces them to continue to eat when once they have commenced a meal. The desire, however, like many others, is very fallacious, and experience has proved how injurious it is to comply with it.

Other patients also, like the preceding, experience a sensation which they take to be hunger; according to the expression which many of them use, they *feel a craving*, they commence eating with real greediness; but scarcely have they taken the smallest portion of food, when they are obliged to stop, they become disgusted; several say that they feel their stomach so filled that, though *they still have a craving*, they can no longer swallow. Others fancy that the food which they intend should pass into the stomach stops in the gullet, and chokes them. Thus different sensations indicate that sort of struggle which is set up between the preservative instinct which forces the individual to repair his loss by the assimilation of new materials of nutrition, and the stomach which refuses to admit food which it is unable to digest. Under such circumstances, many patients seek after stimulating food and spices of all kinds; sometimes

they are indulged with them, and it is supposed that it is still an instinct which it is useful to obey; but they always pay dearly for such efforts, unless the disease is on its decline.

In other cases of chronic gastritis, the necessity for reparation evinces itself by an appetite so very great that, if they are not immediately gratified, the patients actually faint away. This feeling may return several times a day, and a very small portion of food is in general sufficient to appease it. For it is not real hunger, and in the majority of cases this imperious necessity for taking aliment into the stomach is promptly changed into a disrelish for food.

There are persons labouring under chronic gastritis in whom the want of reparation is indicated by extraordinary sympathies. In some there is observed a headach, which ceases when a little food is taken into the stomach. Others are attacked with dyspnœa, or else they have a dry cough, which is appeased the moment they have eaten. We know a person in whom such a cough returned in this way periodically some time before each of his meals.

Every time that chronic gastritis comes to be exasperated, and evinces a tendency to pass into the acute state, the appetite is completely lost, if it did exist; and if it were succeeded by one of the phenomena just mentioned, these phenomena also cease, and no other symptom is now observed, except total and absolute disrelish for all kinds of food.

Chronic inflammation of the stomach is not necessarily accompanied with pain in the region of the suffering organ. This pain may be even entirely absent in the most severe cases, in those wherein the parietes of the stomach are attacked with cancerous degeneration, with ulceration on its internal surface. We have seen several cases of this kind, in which the epigastrium had remained entirely free from pain; we have seen other cases, on the contrary, in which we should certainly have found but very slight lesion, and still where the epigastrium was either habitually or at intervals the seat of very acute pain. Moreover, the extreme acuteness of these pains appeared to us to be much more frequently the product of neuralgia of the stomach than of real gastritis.

The nature of the pain, connected with chronic gastritis, is far from being always the same. At times very acute, and appearing only at certain intervals, it manifests itself by a feeling of constriction towards the epigastrium, whence it has been designated by the name of *cramps of the stomach*. We have seen cases in which this particular pain appeared at intervals more or less remote in persons labouring under well-marked chronic gastritis. We have seen other cases where, in the absence of this pain, there was no sign of any affection of the stomach; it might then be considered as purely nervous. Still we should add, that we have observed persons who, after having been for a long time subject to these cramps of the stomach, there being no complication of any other gastric symptom, presented at a later period all the symptoms of a chronic inflammation of the stomach. Is not this one of those cases in which a simple neuralgia is the first commencement of an inflammatory state?

Other patients complain of nothing but a sensation of weight in the epigastrium, or else a sort of swelling, which comes on principally after they have eaten. Several complain of a kind of bar which extends transversely over the epigastrium and the two hypochondria; some experience very troublesome pulsations towards the epigastrium.

The seat of pain is very variable; sometimes it occupies all the region of the stomach, and the patients feel it as far as the level of the umbilicus; sometimes it occupies a much more circumscribed point, either the parts around the pylorus, or the great cul-de-sac, or the cardia. In this latter case, the patients feel, as it were, a fixed stinging pain towards the xiphoid cartilage; one of these patients told us one day, that he constantly felt as it were a gimlet entering at the point. Others complain of suffering principally above the xiphoid carti-

lage, in the space occupied by the last piece of the sternum, and yet it is not there that the real seat of the disease lies. In such cases, is it over the nervous plexus which surrounds the lower extremity of the œsophagus that the suffering of the stomach is more particularly felt? The pain may also extend all along the œsophagus, and its course is very clearly marked by the patients themselves; then it is a kind of burning heat which they experience all along this tube. Sometimes the pain is felt towards the middle of the back.

In one case, where the pain had been one of the predominant phenomena of the disease, we found near the pancreas a morbid change which might be considered as its principal cause. It was in a woman, sixty years of age, who entered the Pitié, complaining of a very acute pain towards the middle of the dorsal region, which did not allow her a moment's rest. This woman had all the symptoms of chronic gastritis. Some time after her admission into the hospital, another pain developed itself, the principal seat of which was towards the præcordial region, and radiating from thence to all the left side of the chest; percussion detected a dull sound in the region of the heart over a greater extent than ordinary, to as far as the lower part of the sternum. Auscultation detected nothing particular; the pulse which was frequent still retained its regularity; the breathing was not perceptibly embarrassed. About fifteen days passed on in this way, when the præcordial pain disappeared, and that of the back diminished, but then symptoms of another kind supervened; the patient began to sink rapidly; her tongue became dry; a creamy coat extended over the tongue and cheeks, and death soon terminated this long series of suffering. What we found at the *post-mortem* examination was as follows: — A pint of fluid like blood just drawn from a vein filled the cavity of the pericardium; thick false membranes placed one over the other covered all the internal surface of this fibro-serous sac. Thus this pain was explained, which, proceeding from the præcordial region, extended over the left side of the chest, with dulness of sound at the base of the sternum. The mucous membrane of the stomach was softened over the principal portion of its extent, and was very much injected in several points; thus the symptoms of gastritis were explained. But did this lesion of the stomach account for the dorsal pain, which had been so long the predominant symptom? it was at least doubtful, and this pain appeared to us rather to recognise for its cause the following alteration, which is very remarkable for its rare occurrence. In the place ordinarily occupied by the pancreas, there was found a tumour of a cancerous nature (a mixture of the scirrhous and encephaloid tissues), which posteriorly rested on the aorta and vertebral column. This tumour was as it were embraced by the duodenum, which circumscribed it within its three curves; within it we observed here and there some debris of the tissue of the pancreas. Another tumour of the same nature, about the size of a hen's egg, appeared between the liver and the diaphragm, a little to the right of the epigastrium. It adhered closely to the liver. No lesion was found in any other part. It is remarkable, no doubt, that in an individual labouring under gastritis the stomach did not undergo the cancerous degeneration at the time when the predisposition to this degeneration was demonstrated by the existence of the two tumours just described. It is also well to note that, in most of the cases in which the pancreas has been found cancerous, there were cancers at the same time in other organs; here they were not found in any organ. But let us return to our subject.

Whatever be the seat and nature of the epigastric pain, it varies in different individuals with respect to the circumstances which exasperate or reproduce it.

The process of digestion is with many persons the cause of the return or increase of the pain; still several persons say that they suffer whether they eat or not, and whatever be the nature of the food which they take; but these are rare cases, which appertain rather to other morbid states of the stomach, of which we shall speak presently, than to real gastritis.

In a considerable number of persons, the uneasiness occasioned in the stomach by the process of digestion does not occur until a considerable time after food has been taken. Thus we meet persons who suffer in the stomach principally in the morning or on awaking, and in whom the suffering is so much the greater, according as they have been less reserved in their diet on the preceding day.

It would be interesting to know precisely the nature of the gases, which are disengaged in such great quantity from the stomach in a great number of cases of chronic gastritis. We know that sometimes they are devoid of smell or taste, and are independent of the process of digestion, and that sometimes they accompany this process more particularly ; they then acquire the scent of sulphuretted hydrogen, and their taste is often extremely acrid, so as to occasion considerable pain in the parts through which they pass.

Chronic gastritis, in its numerous shades, is seldom accompanied by vomiting; the latter symptom occurs principally in two cases; either, when under the influence of causes appreciable or not, the chronic inflammation of the stomach passes into a more acute form, or else when the alteration, of which the stomach is the seat, opposes an obstacle to the free passage of the food, either at its entrance into the stomach or when it is making its exit from it. It is then principally in cases of a cancerous affection of the cardia or pylorus that vomiting takes place. In the former case this vomiting occurs immediately after food has been taken; in the second case it does not come on till a much later period. Some patients vomit every day, four or five hours only after they have eaten ; in other cases the vomiting does not come on till after much longer intervals, every five, six, or eight days. The persons in this case often vomit at once an enormous quantity of matter; in the preceding article we have explained how in such cases the stomach acquires a prodigious size, and becomes like a large bag for carrying food, as long as it can be distended; we can then frequently trace this bag, both with the eye and by our touch, through the attenuated abdominal parietes, and more frequently still we can ascertain the dilatation of the stomach by the gurgling noise readily produced in the epigastrium, by shaking the patient's trunk. The same takes place in patients who themselves can produce this gurgling by forcibly contracting the abdominal parietes, so that these parietes alternately are removed from and brought in contact with the viscera which they cover.

With respect to those cancers of the stomach which affect the body of this viscus, they may exist in all possible degrees without vomiting being ever produced. Then we have often found on one or other surface of the stomach either extensive ulcerations surrounded by a scirrhous tissue or large cancerous vegetations, in persons who, during the course of their long illness, had never had either nausea or vomiting.

The matters vomited by persons labouring under chronic gastritis are more particularly either food or mucus secreted by the stomach itself, or bile, or blood with its ordinary qualities, or a black matter, which seems to be nothing but blood changed by its having been in the stomach for some time. (See the preceding article on this point.)

The vomiting of mucus may be merely accidental, and connected with a temporary increase of the gastric irritation. At other times it is habitual; thus several patients throw up every day, either in the morning only, or several times in the course of the day, a whitish viscid liquid, very much resembling albumen which has not been subjected to boiling. This sort of vomiting is not often accompanied by any other, and it by no means always occasions for instance that of the food.

Chronic gastritis is scarcely ever accompanied by bilious vomiting, except when it becomes more acute. Sometimes this sort of vomiting precedes the

other symptoms; it occurs from time to time, leaves no trace after it, and it is only at a later period, and often without its reappearing, that all the signs of chronic gastritis supervene. Thus we have seen a person who, from his eighteenth to his thirty-seventh year, scarcely passed a summer without being attacked with copious vomiting of bile, and alvine evacuations of the same nature. He for some days felt a sort of general indisposition and fatigue, he lost appetite, the epigastrium became a little sensible to the touch, and bilious evacuations commenced; they continued for two or three days, and then his health was restored. In all the other seasons of the year this person digested his food well, and suffered nothing from his stomach; but such did not continue to be the case; towards the thirty-sixth year of his age his stomach began to be permanently affected, and by degrees he presented all the symptoms of scirrhous pylorus.

It is generally supposed that vomiting of black matter like chocolate, coffee-grounds, or soot, is one of the least equivocal signs of cancerous degeneration of the stomach. In the preceding article we have cited cases wherein this vomiting appeared without there being cancerous ulceration of this organ, nor even a trace of cancer in its parietes. But in the cases which we have cited, the stomach, without being cancerous, presented alterations which characterise others forms of chronic gastritis. Here now are other cases in which the stomach was not the seat of any appreciable lesion, though during life profuse black vomiting had occurred. In one of these cases the cancerous masses had attacked the liver; in the others the principal disease was chronic peritonitis.

1st Case. A man, thirty-five years of age, entered the Maison Royale de Santé with dropsy (serum in the peritoneum; infiltration of the scrotum and lower extremities; no trace of œdema in the upper extremities, nor in the face). After the scrotum was scarified, the skin of the part became red, and phlegmonous erysipelas attacked the thighs, the iliac fossæ, and ascended as far as the flanks. Whilst this erysipelas was becoming developed, the patient vomited a great quantity of black matter like soot mixed up with water. He died three days after this vomiting appeared.

We found the stomach free from all appreciable lesion. It was pale on its internal surface, and its different membranes were of their natural thickness and consistence; the remainder of the digestive tube was pale and healthy like the stomach. The liver, which was of a moderate size, presented on its interior twelve white hard masses, possessing all the characters of encephaloid matter in the state of crudity. The spleen was large and very firm. The other organs presented nothing remarkable. The cellular tissue of the scrotum, thighs, and hips were infiltrated with sero-purulent liquid.

2d Case. A man, fifty-three years of age, during his stay in the Maison Royale de Santé, presented the different symptoms of chronic peritonitis; still further, he had some cough, and in the course of his life had had some attacks of hemoptysis. He kept to milk diet. All at once this man was seized with vomiting of matter resembling coffee-grounds; on the two following days he passed similar matter by stool. Rapid exhaustion followed these evacuations, and he died.

On opening the body we found the intestines united into one mass by false membranes which were studded with myriads of tubercles. The internal surface of the stomach presented a very slight injection in some points; the gastric mucous membrane was everywhere of its normal thickness and consistence, and no alteration was observable in its subjacent tissues. The small intestine was pale and healthy. Such was not the case with the large intestine; it was filled throughout with a black matter similar to coffee-grounds mixed with another substance of a yellowish grey colour, which crumbled under the finger,

and was fatty to the touch ; it resembled clay ; the black substance was more abundant than the other ; the intestine was distended by it. After the latter had been well washed, its inner surface was found to be perfectly white, and its different coats healthy. Nothing remarkable in the liver or in the bile contained in the gall-bladder. The spleen was small and dense. The upper lobe of each lung contained tubercles ; the greater quantity was found in the left lung. The heart, which was remarkably pale, without its tissue being more friable than usual, contained a small quantity of blood in its cavities.

3d Case. A man, sixty years of age, entered the Maison Royale de Santé with the signs of chronic peritonitis. On the right of the epigastrium the abdominal parietes formed a striking prominence, such as would result from the presence of a tumour. October 2, this person was attacked with diarrhœa ; he then vomited a great quantity of greenish bile several times; he continued to vomit bile on the two following days. On the 5th the nature of the vomiting was changed : it consisted of black matter resembling coffee-grounds ; from the moment this new vomiting appeared, the features became rapidly changed ; a state of great exhaustion ensued, like that which accompanies profuse hemorrhage, and death took place on the 6th of October, at four in the morning.

At the *post-mortem* examination we found a sero-purulent effusion in the peritoneum, and false membranes which united the intestines together in every part. Small miliary tubercles were scattered over the gastro-colic epiploon, a profuse collection of pus was found in front of the stomach ; a cavity was formed bounded entirely by the abdominal parietes, posteriorly by the stomach, on the left by the spleen, and on the right by the liver, which seemed to have been flattened by this collection. Anteriorly and below the edge of the liver, towards the point occupied by the gall-bladder, another pouch was found, the parietes of which consisted of false membranes easily torn by the finger ; this pouch also contained some pus. It was this pouch which during life formed the prominence on the abdominal parietes towards the right hypochondrium. False membranes placed one over the other thickened the parietes of the gall-bladder to an extraordinary degree.

The stomach was empty, its internal surface was white, and its different membranes in the natural state. The duodenum, jejunum, ileum, and all the large intestines, were filled with a black matter resembling coffee-grounds. Beneath this matter no other morbid change was found except a number of black points on the villi of the duodenum and of the commencement of the jejunum. The liver was remarkably dense ; it presented a great number of irregular patches of a whitish grey colour, consisting of the yellow substance divested of colour, the convolutions of which were, as it were, heaped on one another, the red substance having disappeared between them. The spleen, which was pale, was of the natural size and consistence. The summit of both lungs presented some tubercles scattered through a hard and black tissue. The heart, which was pale, contained a small quantity of liquid blood, as did also the vessels.

These three cases prove clearly that the black vomiting, which is often one of the effects of cancerous degeneration of the stomach, may also result solely from an exhalation of the gastric mucous membrane, an exhalation not connected with any lesion of the stomach appreciable on the dead body. This exhalation may also take place at the same time in the intestine, in which again no lesion is to be found. Only in the case just cited one might be struck with the very pale appearance of all the internal surface of the digestive tube, and with the sudden sinking of the patient's strength, which took place from the first appearance of the evacuations. These are so many phenomena which usually accompany every profuse hemorrhage.

One of the symptoms most usually accompanying chronic gastritis, when it

is free from any complication with the rest of the intestine, is obstinate constipation. It is increased or diminished according as the gastric irritation is more or less severe. In such cases the patients too often attribute to the constipation their gastric symptoms, and the purgatives to which they have recourse to overcome it seldom fail to aggravate the complaint; and always after the stools which they thus provoke artificially, they still remain more constipated than before. The only means of subduing this constipation, is to diminish the gastric irritation.

In chronic gastritis the functional disturbances are not confined merely to the digestive organs. The irritated stomach reacts on the different organic systems, and from thence there are produced symptoms as different as the individual predispositions themselves are.

On the part of the nervous system functional disturbances the most varied may be observed. For instance, it is very frequent to see in persons labouring under chronic gastritis, each digestion accompanied by extreme debility, a general feeling of fatigue, wandering pains in the limbs, a sort of distress which disappears according as the digestion approaches its termination. It may happen that whilst these general symptoms are observed, the suffering on the part of the stomach itself may be very slight; and observe that it is by these same general symptoms that acute inflammation also of the stomach often commences, and that in this case also it happens more than once that the general symptoms are much more marked than the local. With respect to this circumstance, see the preceding part of the work.

Independently of this effect which is observed in a great number of cases, there are others more uncommon, which depend on the particular state in which the gastric affection may find the nervous system in each patient. Thus in some persons headachs are observed which are evidently dependent on the gastric irritation with which they are tormented.

We know a lady who, labouring under chronic gastritis for several years back, is seized with a well-marked numbness of the upper extremity of the right side every time the gastritis becomes worse. We know another who, having had facial neuralgia in her youth, has ever since found this neuralgia to return every time that her stomach, which is habitually delicate, has become the seat of increased irritation.

We have been consulted by a young man affected like the preceding persons with chronic gastritis, whose entire skin becomes from time to time so acutely sensible, that he cannot bear the least contact without pain. He has remarked that this extreme cutaneous sensibility was constantly preceded by an increased severity of the gastric symptoms, and that it invariably diminished with the latter.

We once attended a patient thirty-six years of age, who enjoyed all the comforts of life, who was haunted by the idea of suicide during all the time he had gastritis; he had been labouring under it for three or four months when he applied to us. By means of suitable treatment we removed the gastric inflammation, and from the moment his digestion was restored he gave up all idea of suicide.

We know that many cases of hypochondriasis may be referred primarily to a morbid state of the stomach. How many persons have we not seen who, without becoming hypochondriacal, were seized with profound melancholy, for which they could not account, every time they complained of their stomach!

The circulation is but little changed by chronic gastritis. Excepting the case where this affection passes for a time into the acute stage, the pulse remains free from frequency, and the skin continues cool. In some persons, however, the process of digestion is accompanied by a slight febrile paroxysm.

In consequence of a peculiar disposition, several persons labouring under

chronic gastritis are annoyed with palpitations evidently connected with this gastritis, and which are observed to increase and diminish with it. These palpitations, which are all sympathetic, are chiefly observed in persons disposed to them by the size of their heart, and the gastric irritation then becomes the occasional cause of the more rapid development of the aneurism, the rudiment of which these persons carry about them. Cure their gastritis and you will often see the affection of the heart again become stationary.

The respiratory apparatus is occasionally affected by the irritation of which the stomach is the seat. Thus, in more than one case of chronic gastritis, one of the most prominent symptoms accompanying the process of digestion, is a very painful dyspnœa, the primary cause of which many patients of themselves refer to the stomach. Is it by the influence of the pneumogastric nerve that the disturbance of the respiration can be accounted for in such cases?

At other times it is not this dyspnœa that is observed, but every exasperation of the gastritis is accompanied by a dry cough, which is purely sympathetic, and which has been for a long time designated by the name of gastric cough. Its existence does not appear to us to be at all a matter of doubt; but still we must add, that this cough more frequently appears in persons who labour under some affection of the lungs, as we a little while ago remarked, that palpitations produced by chronic gastritis were observed principally in persons who labour under an affection of the heart. Interrogate phthisical patients on this matter; the greater part of them will tell you that every time they have eaten, their cough becomes more severe, and this is chiefly marked in them, if their stomach begins to be irritated.

The different organs of secretion do not remain exempt from the disturbance occasioned in the system by gastric irritation. The secretions of the skin are those most frequently modified; they are diminished or suppressed, and thence results that peculiar dryness of this organ observable in patients affected with chronic gastritis. This dryness is chiefly remarkable in the palms of the hands.

Is there any connection between this almost constant modification of the cutaneous secretions and those different eruptions so often observable on the skin during the course of some cases of gastritis? We were once consulted by a young man accustomed to gastric affections, whose skin was covered with patches of urticaria every time the irritation of the stomach became increased. We have seen another case still more extraordinary; a young man had been labouring for several months under all the symptoms of gastric irritation; at one time he took four drachms of magnesia; he instantly felt a most painful weight in the epigastrium; he had nausea, which was followed by vomiting, and presently his entire skin became covered with large patches of urticaria. This eruption continued for thirty hours and disappeared. There was here a very striking coincidence between the accidental exasperation of the gastric irritation, and the appearance of the cutaneous eruption. It is well known that in many cases herpetic affections never fail to become more severe, every time the stomach becomes irritated. Thence the indispensable necessity of the mildest regimen in affections of this kind.

When gastritis gives rise to vomiting essentially composed of bile, it must be admitted that the secretion of the liver itself is modified. For in the ordinary state, the bile enters the duodenum only in small quantities at a time, as may be observed in living animals. An increased quantity of bile therefore must flow into the intestine all at once, and following a course contrary to its natural course, it rises towards the stomach, and passes the duodenum; to be sure it might also so happen that it was only by little and little that the bile entered the stomach, and that this organ did not throw it up until it was collected there in sufficient quantity.

The urinary secretion is modified in a thousand ways in persons labouring under chronic gastritis, but without this modification being more peculiar to gastritis than to any other disease; we shall not therefore dwell on it here, and

we shall merely cite two rather remarkable cases which we have met, which prove how great the influence of the diseased stomach may be on the functions of the kidneys.

A man, about forty years of age, presented, for a long time back, the symptoms of an habitual gastric irritation. At three different times he was attacked, without any known cause, with an acute pain in the epigastrium, followed by copious vomiting of bile. Every time these symptoms returned he passed several gravel stones when voiding his urine, which consisted of uric acid. At no other period of his life did he observe his urine to contain any.

A young lady consulted us for diabetes mellitus, to which she had been subject for the last year. We put her under an exclusively animal diet, which she was not able to continue long. We soon discovered that in this individual the diabetes was complicated with chronic gastritis, which seemed to have been completely neglected in the treatment hitherto adopted. We ascertained from the patient, that she began to complain of her stomach and of bad digestion some months before the first appearance of her diabetes. We thought the best treatment was to endeavour to remove the gastric irritation, and we recollected some cases detailed by Dr. Dézeimeris, in which there was, as in our patient, a co-existence of chronic gastritis and diabetes, and in which the latter disease was removed by removing the inflammation of the stomach. Some leeches were first applied to the epigastrium ; this region was then rubbed with tartar emetic ointment, at the same time we confined the patient to a very mild diet : we tried milk, which till then had been prohibited, and as she digested it very well, it soon constituted her only diet. This treatment was continued for three months ; at the end of this time there was no longer any trace of gastric irritation, and, what is very remarkable, the urine returned to its natural state. Thus, by curing the gastritis, we removed the diabetes, so that it was reasonable to suppose that the latter of these affections was dependent on the former.

ARTICLE III.

TREATMENT OF CHRONIC GASTRITIS.

A disease such as chronic gastritis, which presents such varied degrees of intensity, which corresponds with lesions so varied, and which is indicated by symptoms oftentimes so different, cannot require in all cases the same treatment. There is a shade of chronic gastritis, in which the treatment must be as rigorously antiphlogistic as in acute gastritis ; there is another shade of this affection in which the treatment should be entirely different, and where it is a more or less stimulant plan of treatment that has any chance of success. This occurs towards the termination of a certain number of cases of chronic gastritis, when the inflammation was previously combated by suitable means, and when it is on the point of being removed. In some time it will no longer exist, and still the functions of the stomach will be far from having yet returned to the normal state. Then it frequently happens that we cannot restore them but by having recourse to a new mode of treatment, and principally by changing the quality of the food. Hitherto the mildest diet, and medicines of a corresponding nature, had been alone prescribed, and the disease had not ceased to improve under their influence ; now it remains stationary, and presently it will present itself under another aspect : the mildest drinks, such as gum-water, which hitherto were the only drinks that could be borne, produce, when taken, a sensation of weight in the epigastrium ; if persevered in, they will at length be discharged by vomiting. The same may be said of the fæculas and other mild aliment which had hitherto constituted the basis of the food. Then what

are we to do? Shall we admit that the gastric irritation has again assumed increased activity, and shall we still retain the severity of the regimen? Still we subject the patient to strict diet? In acting thus we might aggravate the symptoms to an alarming extent: total abstinence, at a moment when the exhausted system feels acutely the want of reparation, and where the improvement in the state of the stomach allows us to satisfy it, might occasion towards this latter organ a secondary irritation, which might manifest itself by pain in the epigastrium, dryness and redness of the tongue, nausea and vomiting, and acceleration of the pulse. For these effects there might, in a little time, be no longer a remedy, and the sudden return of the gastritis to the acute state might be speedily followed by death. This is what has unfortunately been observed more than once in cases where persons have taken for signs of increased irritation phenomena which resulted from an entirely different cause. Then the stomach no longer bears gum-water; it bears, on the contrary, some aromatic or bitter preparations, and a little wine of good quality agrees perfectly well with it. Fæcula prepared with milk, or with chicken broth, cannot be digested, whilst strong broth will succeed very well. The gastric mucous membrane is then in the same case as the mucous membrane of the eye, which, towards the decline of some cases of ophthalmia, becomes redder and more engorged under the influence of mild collyria, and which soon returns to its normal state, if bathed with brandy, or touched with nitrate of silver. It is because the accumulation of blood in a part does not necessarily imply that this part is irritated, and because the living tissues, in order that they be able to disengage themselves from the disease which has attacked them, require a certain degree of stimulation beyond and short of which these tissues can no longer return to their normal state.

Long experience alone can teach us to modify, in each particular case, the general rules of hygiene which should be followed by persons labouring under chronic gastritis. We shall make but one remark on this subject; it regards the exercise which is taken by these patients. Very often it is not proportioned to their strength, and, by their fatiguing themselves, they are prevented from digesting. Inasmuch as considerable exercise is useful, when the patients take sufficient nourishment, in the same degree has it appeared to us injurious in the case of those who are kept on strict diet. In such cases the digestion has all at once become easier merely by obliging the patient not to walk after eating. We have seen persons who did not digest well except they took their meals in bed, and remained there all the time the process of chymification was going on. We have attended a lady who could not re-establish the functions of her stomach, which had been for a long time the seat of irritation, except by eating in a bath. At first she breakfasted and dined in this way; she then took but one meal so; after strictly adhering to this practice for about six weeks she was completely cured.

CHAPTER III.

OBSERVATIONS ON SOME AFFECTIONS OF THE STOMACH, WHICH DO NOT CONSIST IN AN INFLAMMATORY STATE OF THIS ORGAN.

The different alterations of the stomach considered in the two preceding chapters, possess this common, and at the same time very important, character, namely, that the antiphlogistic treatment is that which may be employed with most advantage against them. When this treatment is no longer useful, it is because the nature of the alterations against which it was employed, has been changed. We pointed out this at the end of the second chapter.

We have, with M. Broussais, employed the term *gastrite* to express those

numerous alterations which all recognise irritation as their common link, and which all require a treatment exclusively emollient.

Still every affection of the stomach is not gastritis. In many cases its functions may be disturbed under the influence of causes all differing from those which ordinarily produce inflammation, and this disturbance of function is removed only by a treatment which must necessarily exasperate it, if it depended on this inflammatory state of the stomach. *Post-mortem* examination again steps in here to strengthen those proofs of its authority, by presenting to us cases in which the stomach exhibited no trace of inflammation, though during life it had been the seat of functional disturbances more or less serious.

First, it is generally admitted that several diseases of the nervous centres may very much disturb the functions of the stomach, occasion profuse and prolonged vomiting, without our being able to detect in the stomach itself any appreciable lesion whatever. Numerous instances of this are to be found in the first part of this work.*

Case 1.—Dyspepsia of several months standing; progressive wasting—No appreciable alteration in the stomach, or in any other organ.

A woman, thirty-eight years of age, entered the Pitié in the month of April, 1831. She stated that since the last seven or eight months she entirely lost her appetite; every time she took food she felt an insupportable weight in the epigastrium, and occasionally rather an acute pain. From time to time she vomited some whitish mucus. Strong pressure on the epigastrium produced no painful sensation in this region. The remainder of the abdomen was soft and free from pain; the patient was habitually constipated; tongue natural; no disturbance of any other organ; the patient was very much emaciated, and very feeble. She mentioned that she had begun to lose her appetite and her powers of digestion after having been subjected to severe mental distress.

We considered this woman as labouring under chronic gastritis, and in consequence of the perfectly natural appearance of the tongue, we apprehended the existence of a cancerous degeneration of the sub-mucous cellular tissues. We prescribed milk diet, and established a seton over the epigastrium. The woman wasted away gradually, and eventually died without presenting any new symptoms. Towards the latter period of her life she even refused to take milk, and admitted nothing else into her stomach except a few spoonsful of gum-water.

Post-mortem. The brain, lungs, heart, and abdominal viscera were all found in a perfectly healthy state, as also the trisplanchnic and pneumogastric nerves.

Thus, in this case, anatomy was entirely unable to reveal to us the cause of the symptoms and of death. This stomach, so very much disturbed in its functions, was perfectly healthy in its texture.

It was not, therefore, of chronic gastritis that this patient died; for gastritis leaves behind it traces of its existence. Was there in this case neurosis of the stomach, or atony of this organ? Who could prove it? We know so little by what force chymification is accomplished, that we cannot appreciate all the causes which prevent its going on.

On the other hand, the sympathetic connexions between the stomach and the other organs are so numerous, that the disturbance of one of these organs must necessarily modify the functions of the stomach, without this modification being necessarily an inflammation, or even simple irritation. May it not be in this respect the same with the gastric mucous membrane as with the skin? And

* Some cases are here detailed by our author in which profuse vomiting existed as the predominant symptom, without any lesion being found in the stomach to account for it. These cases we have omitted.—Trans.

in the course of most chronic diseases the cutaneous covering is often found considerably modified in its several secretions, without its being in the slightest degree inflamed or irritated; why, under such circumstances, might not the functions of the mucous membrane of the stomach be also more or less seriously altered? In a word, by virtue of this wonderful law of synergy, of which the animal economy presents us with such continual examples, it seems that the functions of the stomach, in which the act of assimilation commences, must tend to become suspended, for this sole reason, that other organs of nutritive life (small intestine, lungs, liver, etc.) have themselves ceased to fulfil their functions. Of what use, in fact, would it be that chyme should be formed, if the further changes of the aliment could not be produced, if it could become neither chyle, nor blood, nor an integral part of the tissues of the individual? Professor Berard, of Montpellier, seems to have expressed this idea with as much strength as accuracy, when he said that the system digested by means of the stomach.

Besides those cases in which the functional disturbances of the stomach cannot be explained by any change in the structure of this organ, there are others wherein, to account for these functional disturbances, some lesions of structure are found; but nothing proves that these lesions are of an inflammatory nature.

Though it has been already laid down that, in the stomach as in many other organs, softening is a result of inflammation, we think it impossible to state positively that every softening is really produced by an inflammatory process. It seems to us that this softening which exists in the gastric mucous membrane in several individuals exhausted by chronic diseases, is but a further degree of diminution of consistence, which the muscular fibre, as also the blood itself taken from a vein, present in the same individuals.* Certainly it is proceeding on a fair and rational analogy, and not transgressing the laws of a sound philosophy, to admit that in cases where the principal agents of life, the blood and nervous system, no longer nourish and excite the organs sufficiently, all the vital force of aggregation, by which the different molecules of the living tissues are held together, ceases to possess its natural and physiological intensity; thence the diminished cohesion of these tissues, and their greater or less softening, from the degree where, as is commonly said, *there is flaccidity of the flesh*, to that where the solid, losing the characters of organisation, manifests a tendency to return to the liquid state. Thus, as we have already mentioned elsewhere, the transparent cornea becomes softened, and is perforated in animals who are put on a regimen not sufficiently nutritive. We have sometimes observed a similar phenomenon in adults, and above all in children who have come to the last stage of marasmus, and in whom, at the same time, scorbutic spots appear in different parts of the body. In these same children we also frequently meet a very remarkable softening of the white central parts of the brain (corpus callosum, septum lucidum, and fornix), without this softening giving rise, during life, to any symptom of cerebral irritation; would it not be reasonable to place this also in the class of softenings from defect of nutrition, or from diminution of vitality? Who would venture to affirm that all softenings of the heart are the result of inflammation or even of simple irritation; that is, according to M. Roche's definition, of an increase in the organic action of the heart? The same may be said of certain softenings of the liver and spleen, of which we shall speak in another part of this work. Again, is the remarkable softening of the bones in rickety patients an inflammation or an irritation?†

* This is not all, and since the recent researches of Dr. Carswell, we can no longer refuse to admit as proved, what I had already considered as possible in my Elements of Pathological Anatomy; namely, that a great many cases of softening of the stomach do not take place till after death, being produced by causes which do not act on the gastric mucous membrane till after life has ceased.

† Regarding the nature and causes of softening of the different organs, see our Elements of Pathological Anatomy.

In other persons the stomach is not found softened, properly speaking; but its coats are very much attenuated; the muscular membrane is reduced to a few pale and thinly scattered fibres; and oftentimes over a greater or less portion of it. The parietes of the stomach consist merely of the peritoneal coat, in apposition with which is found a very thin cellular layer in place of the mucous coat. Like the instances of softening mentioned a little while ago, this attenuation, whether of the mucous membrane alone, or of all the coats at once, is observed only in persons who died in a state of marasmus, worn out by some chronic disease. Only once we observed it in a young girl who was not at all emaciated, and who entered the hospital with the symptoms of acute meningitis, of which she died. But in this case, we do not know whether, before the appearance of the cerebral affection, signs of gastric disease did not exist for a greater or less time.

It may be readily conceived that, if, in a certain number of cases, this attenuation of the stomach comes on like that of the muscles at an advanced period of several chronic diseases, there are other cases wherein this same attenuation is the primary disease.

Should some persons be disposed to consider the attenuation, and real atrophy of the gastric parietes now under consideration as one of the numerous results of chronic inflammation, we would ask them whether they also think that the very great attenuation of the cranial bones often observed in old persons should be attributed to an inflammatory process?

We have been endeavouring to establish by proofs derived from anatomy, that the stomach may present a great number of disturbances in its functions, which do not depend on an inflammatory state of this organ. Let us not then be astonished, if, in a considerable number of patients, we see symptoms more or less similar to those which characterise chronic gastritis, become permanent and even aggravated by the continuance of a purely antiphlogistic treatment, and yield on the contrary to medicines of another description. It is because those symptoms were not produced by gastritis, but by other morbid states of the stomach, the nature of which we cannot always determine, but which experience has taught us to combat by certain therapeutic means.

Thus, this particular affection of the stomach, designated gastric disturbance (*embarras gastrique*), is certainly not gastritis. What its real nature is we know not; but what is beyond all doubt is, that this affection, when it really exists, resists bloodletting, and yields to stimulating cathartics.

We are now taking into account the cases in which, whether in hospital, or in private practice, we have seen the health re-established after evacuations excited both upwards and downwards in persons in whom derangement was indicated by the following signs: for eight or fifteen days to a month they had no appetite; there was an habitual bad taste in the mouth: the tongue which was broad and pale at the apex and edges, was covered with a whitish or yellowish coat, *without this coat presenting any red points;* the stools were irregular, sometimes few and of great consistence, sometimes more frequent and soft; oftentimes a sense of tightness or of weight was felt in the epigastrium, and in some there was nausea. Further, there was general illness more or less marked, a feeling of fatigue, the face was yellow, and *drawn;* the eyes sunk; the head was often painful. We have often seen this group of symptoms resist the application of leeches, or mere attention to diet, or the use of diluent drinks, and then be instantly removed by a vomit or purgative. Are there in such cases *saburræ* in the alimentary canal? Is there a vitiated modification of the secretion of the gastro-intestinal mucus, whether in respect to its quantity, or its quality? Are the unknown powers, whose concurrence is necessary for the performance of digestion, altered? And do emetics and purgatives restore these powers by exciting the intestinal tube and its appendages? Do they produce a beneficial

change in the secretion of the liver and pancreas? We know not; but the good effects of such treatment in the cases now alluded to, and the inefficacy of antiphlogistics in these same cases, are beyond all manner of doubt. (See the preceding part of this work.)

Before we pass to another series of facts, we shall mention a case in which a very intense headach connected with symptoms of gastric disturbance, after having been ineffectually treated by bleeding, disappeared after spontaneous evacuations up and down.

Case 2.—Signs of gastric and intestinal disturbance—Inefficacy of bloodletting—Recovery after spontaneous bilious discharges up and down.

A man, about twenty-two years of age, had been for about three weeks affected with a very painful frontal headach, and very frequent attacks of dizziness, when he entered the Charité. Since that time he had complete loss of appetite, bitter taste in the mouth, and great constipation.

When we saw him, his countenance was expressive of fatigue; the tongue was of a uniform white colour, and exempt from all appearance of redness; the abdomen was in every part soft and free from pain; pulse a little frequent without the skin being hot. Since the preceding day he experienced attacks of dizziness sufficient to prevent him from standing up or walking; he compared his pain of head to the sensation produced on his forehead by violent blows of a hammer. Eight leeches were applied to each side of the neck, and two days after he was bled from the arm (the blood, which came from a large orifice, united into a large coagulum without being buffed). No improvement followed. During the three following days, pediluvia, lavements, and diluent ptisans were resorted to without any relief.

Seven days after his admission the state of the patient was still the same; twelve more leeches were applied to the neck without producing any change. On the eighth day, about a month after this person's health became deranged, he vomited spontaneously a great quantity of greenish bile, and in the course of the day he went several times to stool: the alvine evacuations consisted of a very yellow liquid substance, and were not attended with any pain; in the evening the headach and dizziness were sensibly diminished, and on the next day they were entirely gone. On the three following days profuse bilious diarrhœa took place, it then ceased spontaneously, as it had commenced. Thenceforward the tongue became clean, the bad taste in the mouth disappeared, the appetite returned, and the patient soon left the hospital.

In this case may we not reasonably ask ourselves whether similar evacuations, artificially excited, would not have hastened the return of health? There is another morbid state of the stomach which does not manifest itself by the same symptoms as the preceding, which, like it, becomes aggravated by the antiphlogistic treatment, properly so called, and which, yielding to a decidedly tonic treatment, may be considered as an asthenic state of this organ.

This asthenic state may succeed chronic gastritis and be one of its terminations; this we have already proved. It may be primary without being connected with any other affection, and without any appreciable cause having given rise to it. Again, it is sometimes dependent on general debility of the entire system, and it succeeds causes which have weakened this latter organ more or less seriously: thus it is often observed to occur after excessive indulgence in venery and principally after masturbation.

The individuals in whom the derangement of the functions of the stomach is owing to an asthenic state of this organ cannot eat without experiencing a painful sensation, which is not identical in all. Some complain of a very troublesome weight in the epigastrium; others experience a sensation of tension or swelling in this same region, whilst others again complain principally of suffocation. As long as digestion is going on, they feel general debility, and several fall

asleep. The nature of the food possesses considerable influence over the greater or less difficulty with which they digest; thus the digestion of pulse, white meats, and especially veal, occasions much more pain to the stomach than that of beef or mutton. They find themselves much better after drinking a little wine in water at their meals, than pure water; the latter often excites in them a sensation of weight which is removed by wine. Instead of plain water we may then add some Seltzer water to the wine with great advantage. In some cases it becomes necessary to give some spoonsful of Spanish or quinquina wine at the end of each meal. The success of this regimen very well illustrates the nature of the gastric affection. In such cases the tongue is free from redness; it is pale at its edges as also at its centre; except at the time of digestion the epigastrium is free from pain; sometimes, however, it contains an enormous quantity of gas by which it is distended, and which occasions temporary pain. The patients do not feel any thirst; they are not hungry, properly speaking, and they are apprised of the necessity of taking food either by a sort of painful sensation in the epigastrium, or by a kind of general illness, of which their own experience points out the cause, or by a feeling of faintness. There usually exists obstinate constipation, and the stools are often devoid of colour. In some cases gentle purgatives are necessary to overcome this constipation; their use, repeated with prudence, renders the stools regular, and gives them a better colour, and at the same time the stomach itself is improved; in such cases we have employed with advantage the infusion of rhubarb; we would carefully avoid the use of oily purgatives, as the stomach might not so easily bear them. Sometimes diarrhœa takes place by using pulse and underdone meat. Oftentimes it is not without much difficulty that the digestive powers return to their normal state. It is then no longer sufficient to assist the process of digestion by more stimulating food; it is also necessary to administer certain medicines which act in the same way. The different preparations of quinquina seem to us in such cases peculiarly applicable; they not only possess a beneficial influence on the stomach itself, but they also produce good effects on the remainder of the system, when this participates in the debility with which the stomach is affected. It sometimes happens that this latter organ has recovered the integrity of its functions, and yet, though digestion apparently goes on in a favourable manner, the patient does not recover flesh and strength. We were inclined to admit this in a young man whom we attended some time since. Being attacked at first with an affection which was considered as gastric irritation, he was for a long time subjected to a very spare regimen; his diet consisted almost exclusively of milk. Still a period came when the milk could no longer be digested, and as its use was still continued for some time longer, the patient, who now took no aliment but such as was no longer assimilated, fell rapidly into the last stage of marasmus and debility. Still the tongue was natural, and there was no fever; but the patient pined away so rapidly, that there was some apprehension that his dissolution was at hand; in this state of things his diet was changed; instead of milk and fæculas prepared with water, he took animal jellies, chicken, and soon after mutton; all this food was digested perfectly well; its employment was therefore continued, and the patient soon became able to take very substantial food, without the stomach suffering from it in the slightest degree. Still his general state was not improved; the emaciation remained the same, and the debility did not diminish. We directed that the patient, who thought to increase his strength by taking carriage exercise and walking about his chamber, should discontinue to go out; we also directed that he should remain as quiet as possible, that he should take all his meals in bed, and that he should remain without stirring from it, in order to digest; for we deemed it necessary to spare his strength in every possible way. At the same time we directed him to take alternately an infusion of bark, Seguin wine, sulphate of quina both by the mouth and in the form of

lavements, pills consisting of musk, extract of gentian, and subcarbonate of iron; several times a-day stimulating frictions were employed on the extremities and trunk. We discovered no trace of lesion in any organ, and we began to think that the case was one of diminished power of nutrition. For nearly two months, during which time digestion continued perfectly good, the general state underwent no improvement; towards the end of this time the limbs became infiltrated, and we detected commencing ascites; we then began to despond, and dreaded that some latent alteration of the liver was the cause of this commencing dropsy. We persevered, however, in the employment of the tonic treatment, and at last the time came when the emaciation and debility, being now somewhat diminished, apprised us that the organs were beginning to assimilate the materials of nutrition sent to them by the stomach. As soon as ever the patient began to acquire a little more strength, we made him go out in a carriage, recommending him, at the same time, to avoid over exertion. His flesh and strength returned gradually, and he is now perfectly restored.

Does it not appear that, in this case, the essential lesion principally affected that power or force in virtue of which the living tissues assimilate the materials destined for their reparation? In vain had the stomach recovered the power of digesting the most nutritive materials: the system derived no benefit therefrom. It is to be observed that as long as the disease remained stationary, the urine presented a very copious deposit, consisting of uric acid and several calcareous salts. This deposit diminished from the moment that a slight alteration began to be observable. Was it the materials of nutrition furnished by the aliment, which, instead of being assimilated to the organs, were separated from the blood within the veins? we know that when there is an exuberance in the materials of nutrition, the urine becomes loaded with uric acid and phosphates. Was there not in this case a relative exuberance?

Here is another fact in which the disturbance of the functions of the stomach seems to have been occasioned by an asthenic state of this organ, and where this asthenic state was also dependent on the general state of the individual, and particularly on the state of innervation, on which the cause of the disease must have acted in the first instance.

Case 3.—Symptoms of chronic gastritis—No amendment from the employment of the antiphlogistic treatment and strict regimen—More substantial aliment—Cure.

A young man, about twenty years of age, of a strong constitution, was in the enjoyment of good health, when he gave himself up to excessive masturbation. Some time after he had commenced to indulge in this destructive habit, his digestion, which till then had been good, became deranged; he felt, after eating, a disagreeable weight in the epigastrium; at the same time he wasted away, and a very distressing frontal headach made its appearance. These symptoms had existed for some months, when a physician was consulted; the patient, alarmed at the state of his health, left off the practice of masturbation, and, notwithstanding the functions of the stomach were not restored, the headach still continued. He was considered to labour under chronic gastritis, consequently the strictest regimen was prescribed, and leeches were several times applied to the epigastrium, all without any advantage; the headach did not diminish, nor the symptoms of gastric disturbance. We then changed the treatment; the patient began to take more substantial food; broths and animal food were ordered. A very little time after he had commenced this new regimen, the headach disappeared, the epigastric weight ceased to be any longer felt, and the patient was soon restored to perfect health.*

* Facts more or less similar to this may be found in an excellent work on nervous gastralgia, by Dr. Barras.

From this fact we think we may conclude that the gastric symptoms, which so often follow venereal excesses, and masturbation in particular, should not be considered as invariably and necessarily owing to gastric irritation. The case just cited induces us on the contrary to think that, far from the stomach being then irritated, it was really debilitated. It ceased to receive that portion of nervous influence necessary for the normal performance of its functions. It is quite certain that those venereal excesses have the effect of diminishing the energy of the nervous system, and of weakening or depriving the influence of this system on the different organs of animal and nutritive life. Why should not the digestive powers be also debilitated in this case, as well as the muscular strength, and the intellectual or sensorial faculties? We do not now mean to say that inflammation may not arise under such circumstances; we think, on the contrary, that in consequence of the normal action of the nervous centres being modified, these different organs more readily and more easily become the seat of congestions, irritations, and of real inflammations; but on the one hand it must not be supposed, that all the symptoms which then come on can be occasioned only by them; and on the other hand it must not be forgotten, that even when they do exist, their treatment should be modified according to the particular conditions under which these inflammations have become developed.

In this case it is quite clear that it is not to the mere removal of the determining cause of the disease that the cure was owing; for the individual had for a long time discontinued the practice of masturbation, and still the disturbance of the digestive functions continued; we have no doubt but this disturbance was kept up by the debilitating treatment to which the patient was at first subjected.

Besides these cases in which the disturbance of the functions of the stomach seems to depend on an asthenic state of this organ, there are others wherein this latter cause can no longer be satisfactorily proved, and wherein the gastric symptoms are usually referred to a neurosis. Such is the following case:

A young lady, for whom we had been consulted during the winter of 1833, had been frequently during her life affected rather seriously with respect to her stomach. When we saw her she could not digest any food without feeling acute pains in the epigastrium. She soon gave up all sort of nourishment; she was unable to bear the lightest food; vomiting set in, and the patient became so debilitated and emaciated, that she was considered as dying. The tongue retained its natural appearance. Amidst this increasing debility, the patient was distressed by a very acute feeling of hunger, but in vain did we strive to satisfy it. The lightest food given to her was thrown up by vomiting; or, if it was retained, its digestion occasioned to the patient a state of indescribable suffering. M. Recamier, who was then consulted, thought that cold affusions might be beneficial, and he considered himself warranted in hoping, that, as soon as their employment was commenced, the digestive functions would be re-established, and that the patient might be able to bear some beef-tea, in which bread was steeped. The other physicians in attendance agreed to M. Recamier's proposition.

The patient being seated in an empty bath, water of the temperature of 22° R. was poured over her entire body, for about five minutes. She bore this first affusion very well; but when replaced in the bed she felt herself so very ill that she refused to take any species of food. On the following day, the affusion was recommenced, and this time the patient was actually forced to take a tolerably large slice of bread in some beef soup immediately after. The affusions were continued, and after each of them the patient was made to take a meal of a still more substantial quality; she very soon became able to digest a mutton-chop; her strength was perfectly restored, and in this way an affection was removed

which had appeared sufficiently alarming to induce us to announce to the family her approaching dissolution.

The region of the stomach sometimes becomes the seat of very acute pain, which, unaccompanied by any other alarming phenomenon, still seems to be connected with mere disturbance of the innervation. Thus we have had an opportunity of seeing a young girl extremely hysterical, who from time to time felt on a sudden, a little below the ensiform cartilage, a lacerating pain, which, when left to itself, generally lasted about 30 hours, and was relieved much sooner, when the patient was made to take a mixture, the active ingredients of which were æther and Rousseau's laudanum. This girl had a very good stomach, and her pain had scarcely disappeared, when she commenced to eat, as usual, without any thing unpleasant resulting from it.

We knew another woman about fifty years of age, in whom a lumbago, which habitually tormented her, was from time to time succeeded by an acute pain in the epigastrium; this continued for some days, it then disappeared spontaneously, and the loins again became the seat of pain.

A man consulted MM. Chomel, Margolin, and myself, in the summer of 1833, for an extraordinary affection, of which the following are the principal traits: this person, who was about sixty years of age, and of an excellent constitution, and had always led a sober, regular life, felt for the first time, about twelve years before, an acute lacerating pain in the epigastrium. The pain continued for several hours, and then ceased; he had never felt the least uneasiness with respect to the stomach; it had scarcely ceased, when he was able to digest as well as before. Since that time, this pain reappeared very frequently, at greater or less intervals. For some time it returned periodically, regularly assuming the tertian type; at another period, it presented itself every eight days; most frequently it observed no regularity in its returns. Its duration was very variable, sometimes an hour did not elapse between its appearance and its termination, sometimes it continued from twelve to thirty hours; once it lasted for upwards of one hundred hours, and this protracted attack was followed by jaundice; this was the only time that any disturbance appeared with respect to the biliary apparatus. This pain returned several times without any assignable cause; under other circumstances mental exertion seemed to exercise some influence over its reappearance. The patient vomited a certain quantity of clear mucus, the expulsion of which seemed to relieved him. We witnessed one of these attacks: the patient who was sitting up in his bed, the trunk being inclined forwards, expressed by loud cries the violent pain which he felt; this pain was seated immediately below the ensiform cartilage; it did not extend into the hypochondria, and inferiorly it did not reach as far as the umbilicus. It was not perceptibly increased by pressure. The countenance was pale, and the features became very much altered; the skin, which was cold, was covered with a clammy sweat; the pulse was very small, and not more than fifty. We gave him some acetate of morphia in the form of pills. This attack did not last long. The next morning the patient returned to his habitual state of health which was excellent; he had a good appetite, and was able to take his ordinary meals. It was evident that at the time of the attack, no organ was suffering in this case. Did the patient labour under neuralgia, either of the pneumogastric nerves, or of the solar plexus? Antispasmodics and narcotics seemed the most beneficial remedies, and it was these we prescribed to the patient. However, after the lapse of some months, and after a very severe attack, he discharged a calculus of moderate size by stool, from which time he became quite well.

There is another system, which in certain cases seems connected with mere nervous disturbance of the stomach; that is vomiting. We have already cited the remarkable case of a woman who had copious and long protracted vomiting, which was not accounted for by any appreciable disorder in the texture of the stomach. We have met other individuals, also, in whom the vomiting did not

appear to be connected with a gastritis, or any other organic change of the stomach. We have seen, for instance, two women, aged from twenty-seven to thirty years, who for a considerable time laboured under palpitation of the heart, so severe that we apprehended the actual or approaching existence of an aneurism of that organ. However, these palpitations ceased, and no disturbance any longer remained with respect to the circulating apparatus. But in both these individuals a little time after the action of the heart became regular, there came on vomiting which was soon repeated every time they tried to take any food. This vomiting continued, on one of them for the space of twenty days, in the other for nearly two months. The latter individual, who was now reduced to the last stage of marasmus, appeared doomed to immediate dissolution. In both, however, these obstinate attacks of vomiting disappeared; solid substances, such as biscuits and the like, could be retained at a time when milk and chicken-broth were rejected; there was scarcely any interval between the time when the vomiting ceased, and that when their stomach was able to digest everything with impunity. Thus, their recovery was very rapid. During their illness the tongue had always remained natural, the epigastrium was free from pain, and the pulse was not frequent, the sensation of hunger had also been always retained. These certainly were not either the symptoms, course, nor mode of termination of a gastritis. In both these cases, the subnitrate of bismuth appeared to us to be the medicine which contributed most to the cessation of the vomiting. Before it, opium had been employed without any good effect; at first, we sprinkled some acetate of morphine over the surface of a blister; we then gave it internally.

Independently of all these functional disturbances of the stomach which recognise so many different causes, and constitute so many different diseases, may this organ be affected also under the influence of an entirely specific cause, such as the venereal virus? Many cases present themselves wherein the symptoms of a gastric affection disappear under the influence of mercurial preparations? We propose these questions, without being able to solve them; we shall cite the two following cases, as bearing on these points; they seem particularly deserving of consideration.

Case 4.—Affection of the stomach, presenting all the symptoms of an organic lesion of this viscus, cured during the use of mercury.

A female, twenty-nine years of age, whose father had died of an organic affection of the stomach, was married at the age of seventeen, and having had four children the first five years of her marriage, contracted about three years ago a gonorrhœa, which, after having been treated in its acute stage by demulcent drinks, baths, and soothing injections, was then stopped by the use of the astringent mixture known by the title of Choppart's mixture.

All discharge had ceased; the patient presented no general or local symptom indicative of the existence of the syphilitic virus; she assured us that she had never enjoyed such excellent health; from time to time only some pimples appeared on the external labia, which disappeared very speedily under the use of baths and lotions of marsh-mallow water. Their frequent reappearance attracted my attention; when carefully examined, they seemed to present a dartrous appearance. The patient was put on the use of cooling drinks, and she took twenty Barrege baths; from that time the pimples did not reappear. For two years I continued to see this lady very frequently, and I know that her health was not for a moment impaired. At the end of these two years she became a prey to strong mental emotions; her life was crossed by annoyances of every kind. After this period she began to lose flesh; her complexion left her; her face assumed a leaden, livid appearance; most serious symptoms soon appeared with respect to the digestive organs; the appetite was lost; the food taken into the stomach occasioned a painful sensation, the seat of which the

patient referred to the parts below the xiphoid cartilage ; her food was sometimes vomited a few hours after having been taken. The epigastric region, when examined carefully, presented no appearance of tumour ; it was sensible on pressure ; violent eructations took place ; the tongue was habitually whitish ; stools natural ; pulse very rarely frequent ; skin dry ; the menses returned every month as usual, but much less copiously. Everything seemed to announce chronic gastritis in this patient. No symptom excited any suspicion that the liver was affected. Leeches were frequently applied over the epigastrium ; they several times seemed to diminish the sensibility of the stomach. This region was covered with emollient fomentations ; tartar emetic plaster was tried, and blisters over the epigastrium ; a cautery was applied to the arm ; the application of ice to the epigastrium oftentimes suspended the vomiting ; every species of opiate taken internally was soon vomited ; the patient took nothing but some emollient drinks.

Notwithstanding all the efforts of art the disease made frightful progress. Five months after the appearance of the first symptoms daily vomitings took place ; every species of food, whether solid or liquid, was in a great measure thrown up a little time after being taken ; asses' milk was the only nutritive drink which could now be digested. We despaired of being able any longer to check the progress of this deplorable affection, when one day the patient complained of a distressing sense of heat in the throat, and of a difficulty in swallowing. The inspection of the parts soon detected on the posterior wall of the pharynx an ulcer of some breadth, and of a rounded form, the appearance of which resembled that of syphilitic ulcers ; there was no other venereal symptom present. We then asked ourselves whether the gastric affection which was hurrying the patient to the grave, might not be owing to a syphilitic taint. However hazardous this idea was, I still adhered to it, it being the only chance of recovery left to the patient, and because that under any circumstances the inconveniences arising from an antivenereal treatment, when conducted with judgment and discretion, could not be at all compared to the advantages which would result from it if judiciously employed. I consequently recommended the use of mercurial pills, each of which contained an eighth of a grain of deutochloride of mercury. I commenced with one pill, which was taken at night ; I increased them one by one, half in the morning and half at night, to the number of six only. I directed her to drink in the morning some barley-water containing milk, which she did not always vomit ; this treatment was continued for forty days. At first, no sensible improvement took place ; it was certain, however, that the mercury taken into the stomach did not exasperate the former gastric symptoms, and that the state of the patient did not become worse. Towards the twenty-fifth day the vomiting became less frequent ; the stomach seemed to digest somewhat better ; strength seemed to return ; the appearance of the countenance was not so leaden. From the thirtieth to the fortieth day the amendment could not be questioned ; it was principally marked in the infrequency of the vomiting. Encouraged by this success, I then combined the use of frictions ; the lower extremities were rubbed at first every third day, and then every second day, with a drachm of strong mercurial ointment. After the twelfth rubbing the state of the patient was entirely changed. The vomiting ceased ; food could be taken into the stomach without causing pain ; the epigastric region was soft and free from pain ; the skin no longer retained its dryness ; the natural appearance of the countenance returned, and the patient was soon perfectly restored to health.

Dr. Marc lately showed us a case resembling the preceding in several particulars. An actor at one of the Parisian theatres, about 40 years of age, had had several times symptoms of venerea, gonorrhœa, chancres, tumefaction of the inguinal glands, swelling of different parts of the periosteum, pains in the

bones, cutaneous pustules ; he had never undergone any regular course of treatment. When he consulted M. Marc, he was in the most deplorable state of wasting ; his countenance was very pale, and expressive of suffering ; hollow jaws, great emaciation ; such exhaustion that he could scarcely walk about his room : he could no longer go down stairs ; he had a small, dry, frequent cough, with hoarseness, and slight pains in the larynx, respiration short and hurried ; tongue a little red ; loss of appetite, epigastric pain ; frequent vomiting ; stools natural, acute and deep-seated pain in the limbs ; painful swelling towards the middle of the internal surface of the tibia, appearing to depend on a swelling of the periosteum.

From the group of symptoms just enumerated, this individual appeared to labour under twofold chronic inflammation of the stomach and bronchi, and one might very strongly suspect in him the existence of pulmonary tubercles and dread their development. However, we examined his chest with M. Marc, and neither this mode of examination, nor percussion, revealed any organic lesion of the respiratory organs. The patient had been for a long time back subjected to all the varieties of the antiphlogistic treatment without any benefit. In this state of things, M. Marc asked himself whether this was not an instance of *venereal phthisis ;* and after having considered the matter with us, he commenced the employment of mercurial frictions ; they were continued for some time ; sarsaparilla ptisan was given internally. By degrees his strength was restored, his countenance assumed a more natural aspect, and his flesh returned ; the very troublesome symptoms arising from his lungs and stomach disappeared, and at the end of three months of a treatment in which mercury was pushed far enough to excite salivation, this gentleman's health was perfectly re-established.

Whatever may be the cause to which we may be disposed to refer the gastric symptoms presented by these two individuals, and also the very serious symptoms of chest affection presented by the second, from the two facts now cited the conclusion may be safely and fairly drawn, that symptoms similar to those indicating an organic lesion of the stomach or lungs may disappear, during the employment of a medicine, which, like mercury, must on the contrary exasperate those symptoms, if the organic lesion which the latter seemed to indicate really existed. This lesion is, however, the common termination to which every affection tends, which, by its continuance in a tissue, more or less modifies its nutrition. Thus we are satisfied that the disturbance of digestion, which manifests itself after intense mental emotions, intellectual fatigue, or excesses in masturbation, is owing to the suspension, or rather to the perversion which that portion of the nervous system undergoes, which in the normal state presides over the act of chymefaction. It is not then an inflammation at first ; but it is no less true, that if this perversion of the innervation is prolonged, the nutrition of the different tissues of the stomach becomes deranged, congestions are set up, and what was at first but a neurosis, becomes changed into a serious organic lesion. Thus many cancers of the stomach may be referred for their origin to strong mental emotions ; thus also, attacks of vomiting, which at their commencement were calmed by opiates, and then appeared to be purely nervous, subsequently change character, and become symptomatic of real gastritis. In such cases it does not seem to us that it is merely one and the same disease, which in its various degrees assumes different shades in its symptoms and its treatment ; our opinion is, that there is actually a transformation of one disease into another. We think it any thing but good physiology to see, in every change in the functions of the stomach, nothing but a result of irritation varying merely in degree. Persons then think of nothing but of combating the inflammation by bloodletting, forgetting that oftentimes this inflammation is itself an effect, and that by bloodletting they do not at all come at the cause which produces

it. It is this cause which it should be their chief business to check, to find, and to combat. It was in this way that those physicians reasoned who attended the two last patients whose cases we have given, and they succeeded. If besides it is true that ulceration of the skin, of the buccal and pharyngeal mucous membrane are to be referred to the syphilitic virus* as their cause, and that the mercurial mode of treatment is successfully employed against them, we do not see why ulcerations, or other lesions of more deep seated parts of the mucous membranes, might not also recognise the same cause, and yield to the same mode of treatment. Numerous and accurate observations can alone decide this question, and for such observations science still waits.

CHAPTER IV.

OBSERVATIONS ON LEAD-COLIC, AND ON SOME OTHER DISEASES OF THE DIGESTIVE PASSAGES WHICH RESEMBLE IT WITH RESPECT TO THEIR SYMPTOMS AND THE TREATMENT SUITABLE TO THEM.

The history of lead-colic has been already carefully traced by several writers; nor would we have spoken of it in this part of the work, had not many points of the history of this disease lately become an object of discussion, in consequence of the new medical doctrines. What is its nature? In what state is the digestive tube found in those who die? What sort of lesion does it occasion, consecutively, in the functions, or in the organisation of the nervous system? Is the disturbance of this system always consecutive on the lesion of the digestive passages? is it not sometimes primary? What is the best treatment to be employed in this disease? Are the therapeutic means, which succeed in removing the colic itself, equally effectual in destroying the effects which depend on the alteration of the nervous centres? Does the colic produced by the preparations of copper, in which there is diarrhœa, whilst there is constipation in lead-colic, call, however, for the same treatment as the latter. Lastly, may not the consideration of the symptoms of this species of colic, and of the treatment employed in it, not only without danger, but even with advantage, and the consideration also of the state in which the digestive tube is found in such circumstances, may it not, I say, contribute to throw some light on the nature and seat of different abdominal pains, which, appearing to reside in the digestive passages, seem, however, to depend neither on a peritonitis nor on a real enteritis? From the fact that patients labouring under lead-colic, bear with impunity strong doses of the most violent drastic purgatives, we must not certainly conclude, as many persons do, that the gastro-intestinal mucous membrane possesses but very little sensibility; for this membrane is then no longer in its healthy state; but we may be allowed, at least, to draw this consequence, that other states of the system may also present themselves where the natural sensibility of the intestinal mucous membrane being below its normal state, stimulants of a more or less energetic nature may be brought in contact with it with impunity; this same circumstance takes place normally in certain individuals, as may be seen in several of the cases already cited in the preceding part of this work. We trust the following observations will serve to clear up some of the questions now started.

* We entreat the reader to observe that the success of the mercurial treatment in such cases is attested by too large a number of facts to be called in question, even when the existence of the syphilitic virus should not be admitted.

FIRST ARTICLE.

STATE OF THE DIGESTIVE TUBE IN PERSONS WHO DIED WHILST LABOURING UNDER LEAD-COLIC.

Several writers have stated that, in patients who die during the existence of lead-colic, the intestines are found contracted, and their calibre perceptibly diminished. Desbois de Rochefort says that in two cases he found intestinal intus-susceptions. Many physicians now think that lead-colic is but a variety of gastro-enteritis, and consequently, that *post-mortem* examination should detect in the digestive tube, traces of inflammation, more or less intense : up to the present, I am not aware that any autopsy has justified this view of the matter. But, even though some cases might be cited in which an intestinal inflammation was found, still that would not decide the question ; for we might be warranted in considering this inflammation merely as a simple complication of lead-colic, if other cases were brought to show, that in persons who also died during the course of this colic, the digestive tube presented no species of appreciable alteration. Now, this absence of lesion is proved by the facts which we are now going to cite. — Out of more than five hundred persons affected with lead-colic, who, during the space of eight years, were treated at the Charité, in the wards of M. Lerminier, only five died, whilst they were placed under the ordinary treatment of colic, and again, of these five individuals, there were two at least, who died with symptoms totally unconnected with lead-colic.

Case 1.—Colic—Sudden death occasioned by a rupture of the aorta. No lesion found in the digestive tube.

A house-painter, thirty-three years of age, had been already treated twice for colic at the Charité, when he entered it for the third time in the commencement of the summer. He presented all the symptoms of lead-colic ; acute abdominal pains, which were neither increased nor diminished by pressure ; the abdominal parietes retracted ; vomiting, obstinate constipation, state of tongue natural, pain in the limbs, apyrexia. Since the last fifteen days he had had no stool, and since the last five days only, the abdominal pains began to appear. The patient had taken some castor-oil when at home, which had not overcome the constipation. Immediately after his admission the ordinary treatment of the Charité was commenced ; he was as yet but on the third day of this treatment, and was but very slightly relieved, when he all at once complained of an unusual pain towards the precordial region, and in the course of a few minutes he expired. — The *post-mortem* showed that the cause of this sudden death was a complete laceration, a real perforation of the portion of the aorta contained in the pericardium ; this sac was filled with a coagulum of black blood. In consequence of the disease for which this person had been admitted, we examined his digestive tube with the greatest care ; it was the first time we had an opportunity of opening the body of a patient who died during the existence of lead-colic.

What struck us at first was the total absence of contraction of the digestive tube ; the convolutions of the small intestines, as well as the different portions of the colon, were, on the contrary, rather dilated. The peritoneum was healthy. The inner surface was whitish ; its mucous membrane of ordinary thickness and consistence ; it was covered with a considerable quantity of thready mucus. The duodenum presented its cryptæ developed as usual ; it also was white and healthy. We merely found in the jejenum and ileum some few points where there existed a submucous vascular arborisation. The inner surface of the cæcum, colon and rectum was white, and the mucous membrane presented no

alteration with respect to thickness and consistence. The large intestine contained but a small quantity of hard fæces. This case is certainly one of those wherein we found the digestive tube as free as possible from any trace of inflammation ; however, the patient died of rupture of the aorta, whilst his colic was still very severe ; the intestinal mucous membrane had not even been permanently reddened by the drastic purges. Let it not be said that, in this case, the gastro-intestinal mucous membrane was pale in consequence of the hemorrhage which occurred towards the termination of life : for this hemorrhage was very slight ; there was not half a pound of blood effused into the pericardium.*

Case 2.—Colic—Death by cerebral hemorrhage—Digestive tube healthy.

A middle-aged man, engaged in the manufacture of white lead, had been for some days complaining of acute abdominal pain with all the symptoms of lead-colic, when he entered the Charité. On the following day he had an attack of apoplexy, of which he died at the end of two days ; drastric lavements had been employed without any evacuation being occasioned by them. The autopsy detected considerable effusion of blood like currant jelly in the substance of the right cerebral hemisphere, external to and on a level with the corpus striatum and optic thalamus of this side. The stomach presented some slight sub-mucous injection towards the great cul-de-sac ; it was white everywhere else. The small intestine presented some little sub-mucous injection, principally residing in the veins of a moderate calibre ; the mucous membrane itself was everywhere pale ; so was that of the large intestine also. The calibre of the digestive tube was neither diminished nor increased. Unless it be said that the cerebral congestion had acted as a revulsive in this individual, and thus caused the intestinal irritation to disappear, it must be admitted in this case also, that the lead-colic did not depend on a gastro-intestinal inflammation.

Case 3.—Colic.—Alarming nervous symptoms—Slight redness of the transverse colon over a small portion of its extent.

A man, about fifty years of age, a plumber, entered the Charité with a violent attack of colic, which he had been labouring under for the last few days. We commenced with the ordinary treatment. On the third day, being somewhat relieved, though still suffering severely, he was seized suddenly with very severe nervous symptoms which shall be described presently, and in two hours after he died.

On opening the body, the gastric mucous membrane was found in the normal state. All the small intestine was found to be white, except in several detached points, which taken together might equal a foot in extent ; here we observed considerable injection, not sufficient, however, to destroy the transparency of the intestinal parietes. The large intestine was white and healthy, except to the extent of three or four inches towards the end of the transverse colon, where some redness was observed.

The digestive tube here presented some slight alterations which did not exist in the preceding cases ; but surely no one will pretend to refer the symptoms observed during life to them, there being very few bodies in whose intestines similar lesions are not found occasionally.

Case 4.—Colic—Epilepsy—Sudden death—Slight redness of a small portion of the transverse colon : black colouring of the follicles.

A painter, about thirty-eight years old, entered the Charité in consequence

* It may be laid down as a general principle, that the very sudden death which follows rupture of the heart or large vessels still contained within the pericardium, is not owing to the great quantity of the blood effused into this membranous sac.

of lead-colic. The day after his admission he had an attack of epilepsy. On the following days the abdominal pains continued, but were not severe; the ordinary treatment was resorted to. Ten days after his admission, the colic still existing, this patient died suddenly. On opening the body nothing was found in the stomach but a slate colouring of the mucous membrane towards the pylorus, to an extent equal to about two five franc pieces. The small intestine was white, except towards the summit of some valves, where slight redness was observed, which consisted merely in a vascular arborisation, not at all considerable, when these valvulæ were unfolded. Immediately above the cæcum we found a large Peyer's patch with black points; on the cæcum also some detached follicles were found with a black point at their centre. Nothing worth notice in the rest of the large intestine; it was white, except towards the termination of the transverse colon, where a reddish band was observed about one inch in breadth, and from two to three in length. Where this band was, the mucous membrane lost a little of its consistence.

The unusual colour observed in a portion of the stomach, the black points on the follicles of the termination of the small intestine and of the cæcum, are chronic states which cannot be considered as having any connexion with the symptoms presented by the patient during his stay in the hospital. The slight colouring of some of the valves of the jejunum, the red band found in the colon, appear to us to be lesions too inconsiderable on the one hand, and on the other hand are found too often under every possible state of things, to allow us to refer to them the special symptoms which characterise lead-colic. We shall recur again to the state in which the nervous system was found in this patient.

Case 5.—Colic—Paralysis of the upper extremities—Suddenly symptoms of asphyxia and death—Some redness in different parts of the intestine.

A plumber, about fifty years of age, who had had colic several times, was labouring under it for the last three weeks when he entered the Charité. The pains were not violent, but continual, and from time to time they became very acute. There was obstinate constipation. Further, this individual had complete paralysis, affecting the motion of the upper extremities. The usual treatment was commenced. On the fourth day there was a tracheal rale; a state of asphyxia, and death.

Here also for the present we shall speak only of the state of the digestive tube. The stomach was distended by a moderate quantity of liquid. Towards the great cul-de-sac, a portion of its mucous membrane about the size of the palm of the hand was found softened. Over this same extent it was white, except in two points, where two reddish patches existed, one of which was about the size of a twenty sous piece, and the other that of a forty sous piece. Every where else the mucous membrane was white, and of the natural consistence and thickness. The small and large intestines were rather dilated than contracted. The small intestine presented here and there slight sub-mucous injection (as was to be expected from the kind of death of which the patient died). The mucous membrane of the cæcum presented a red patch of the breadth of a piece of three livres at most. The end of the large intestine was white; we merely observed some large veins passing beneath the mucous membrane. We found here no other lesion worth remarking, except softening of a portion of the mucous membrane of the stomach; but it was not on this softening that the colic depended, which, moreover, in this individual was less violent than in the preceding patients.

Thus, then, in all those who died whilst labouring under lead-colic, and whose bodies we had an opportunity of opening, not one presented in the digestive tube, any lesions by which we could account for the symptoms of the disease. To the five facts now cited we might add a sixth, which is contained in a me-

moir of M. Louis on sudden and unexpected deaths. The patient, whose case he has detailed, died suddenly, eight days after he had been attacked with lead-colic.

Case 6.—Lead-colic treated by the modified method of the Charité. At the end of a month the appearance of nervous symptoms—Death—Nothing found in the intestines.

On the 28th of November, a man of about forty-six years of age, employed in the manufactory of Clichy, entered the Charité, where he was placed in the wards of M. Fouquier. The principal symptoms presented by him were the following: pain in the abdomen, and more particularly along the course of the colon, constipation, pain of head; the abdomen was not depressed. This person was treated according to the Charité method modified by M. Fouquier, without any obvious improvement; the colicky pains continued a very long time, he complained of them almost every day.—Such was the state of the patient, when on the 2d of January he felt a little numbness and sense of formication in the extremities. On the evening of the 5th he uttered several shrieks, and was seized with convulsions, which were succeeded by loss of speech and motion. At the visit of the next morning his countenance was pale, his look was stupid; his head was inclined to the right, his intellectual faculties were abolished, sensibility was entirely destroyed; the power of motion, which was at first abolished, was somewhat restored; the patient occasionally carried his hand to his mouth, and moved his legs tolerably well. (General bleeding, sinapisms to the legs, laxative mixture, etc.) The sinapisms produced no effect. On the 7th, the eyes were entirely carried to the right, the patient understood somewhat better the questions put to him; the pulse was small; there were convulsive movements, and considerable gurgling in the throat and chest. (Blisters to the legs.) On the following night he uttered some inarticulate cries and expired.

Post-mortem.—The face indicated that death had been painful, the features were drawn and inclined to the right. The abdomen having been opened, the stomach was found to be healthy; nothing remarkable in the intestines; only in some few places they were contracted and slightly strangulated, but without any trace of inflammation. The external surface of the brain was injected, its substance a little more dense than natural; the ventricles contained no serum; spinal marrow was healthy.

ARTICLE II.

SYMPTOMS OF LEAD COLIC.

We shall not here dwell on the ordinary symptoms of this colic, as the description of them may be had everywhere. We shall merely notice the following particularities: it is not correct to say that the abdominal pain experienced by persons labouring under lead colic is invariably diminished by pressure, as in a great number of cases this pain is neither increased nor assuaged by it; and sometimes even pressure increases its severity. Yet in these different cases the other symptoms of the disease remain the same; and the same treatment succeeds. Neither is the abdomen uniformly retracted, nor do the abdominal parietes appear always depressed towards the umbilicus. It is probably as common to find the abdomen retain its usual form and ordinary dimensions, or even become larger and more developed than usual, which seems to depend on the distention of the intestines by solid substances or gases. The most constant and invariable phenomenon is constipation; it precedes the colicky pains, and the latter diminish as soon as alvine evacuations commence.

But the digestive tube is not the only organ affected in persons who have

absorbed the particles of lead. The nervous system is frequently influenced by such absorption in a very remarkable manner. Thence result, according to the idiosyncrasy of the patient, or according to the part of the system more particularly affected, or according to the degree in which it is affected, various phenomena, which are most frequently developed in the organs of the life of relation, though sometimes also in those of the life of nutrition.

The most common of these nervous disturbances consist in pains felt by the patients in the extremities, and principally in the arms ; those pains often precede the colic ; sometimes they constitute the only phenomenon, and the functions of the digestive tube are not at all disturbed ; whence we must conclude, contrary to the opinion of some writers, that they are not merely sympathetic of the intestinal affection. These pains are often accompanied by unusual weakness in the muscular action of the part wherein they are felt, and by degrees this weakness becomes changed into real paralysis. Thus we find exaltation of the normal sensibility, and diminution of motion, combined in this case. What then takes place in the extremities appear very analogous in its nature to that which takes place in the intestines, where, at the same time that pain exists, there also appears to be a diminution in the strength of the normal contractility of the muscular tunic, as also of the sensibility of the mucous membrane, which bears with impunity the contact of the most drastic purgatives.

The most ordinary paralysis in persons who handle lead is that of the extensor muscles of the hand ; hence, in consequence of the equilibrium of muscular action being destroyed, there arises an habitual predominance in the contraction of the flexor muscles of the hand, and consequently permanent flexion of the wrist, which remains inclined so as to form almost a right angle with the bones of the fore-arm. The fingers also become flexed on the wrist ; the different phalanges are then observed to be inclined one upon another.

This paralysis most usually comes on only in persons who have been a long time employed in preparations of lead, and have had colic several times. However, we have seen it come on in some cases where the patients had been but a very short time exposed to the influence of lead, and where they had never had any attack of colic previously. In some cases it disappears rather promptly ; at other times it does not disappear till after a considerable time ; whilst at other times it is altogether incurable.

Paralysis occasioned by the preparations of lead, is not always limited to the wrists. We have seen it affect the entire upper extremities, which became altogether deprived of motion. We had twice an opportunity of examining the bodies of persons attacked with this species of paralysis. One of these patients had colic at the same time when he entered the Charité : this was one of those of whom we had already spoken, in reference to the digestive tube. The other had had colic long before, but no trace of it remained at the time he came under our inspection. In the former the paralysis commenced only some weeks before, whilst in the latter it was of several months standing. In both, the upper extremities were entirely deprived of the power of motion : when raised, they fell back as inert masses : still rather sharp pains were felt in them from time to time, and the sensibility of the skin was still retained. In both, the intellects were unimpaired, and the power of speech perfectly free. Both died also in the same way ; their respiration became suddenly impeded, the tracheal rale set in, and they died in a state of asphyxia, nearly like animals in which the two pneumogastric nerves were divided, when they survive the operation for some days, and die of infarction of the lung.

From the group of symptoms observed during life, it was less in the brain than in the spinal marrow that one should expect to find any organic change. The encephalic mass, when carefully examined in its several parts, presented nothing remarkable. The spinal canal contained a small quantity of limpid serum, such

as is found in most bodies. The membranes of the spinal marrow were pale; the marrow itself, examined from its junction with the tuber annular to its lower termination, presented no appreciable alteration in its colour, consistence, or in any of its physical properties. The cervical plexuses, as well as the nervous chords which pass from them, the pneumogastric nerves from their origin to their termination in the stomach, were also found exempt from all manner of lesion. The lungs were simply engorged. The other organs of the chest and abdomen were found healthy, except the stomach of one of the two patients, which was softened in a small portion of its extent, as we have already stated. There is no doubt but in both these individuals some point of the cerebro-spinal axis was seriously changed; but this change was proved only by the symptoms, and not at all by anatomy.

In other individuals, but much more rarely, we have ascertained the existence of complete or incomplete paraplegia, with exaltation of the sensibility, and acute pains in the paralysed limbs. In several, the upper extremities were not at all affected; in others, there was at the same time greater or less debility of the upper extremities.

Instead of paralysis, we have sometimes observed in persons exposed to the influence of lead preparations, convulsive movements, and attacks of an epileptic form. The following is an instance of it, with the *post-mortem* examination.

Case 7.—Lead-colic—Symptoms of epilepsy—Sudden death—No appreciable lesion on the dead body.

A house painter, about 38 years of age, had colic at the time he entered the Charité. On the day after his admission he had an attack of epilepsy, which was prolonged for a considerable time, and was followed by a state resembling apoplexy, which lasted from 30 to 40 hours; whilst it lasted the patient appeared to be in the last agony. However, these alarming symptoms disappeared, he recovered his intellect and power of motion, but the mental faculties still remained a little dull. The countenance was pale and expressive of distress; the colicky pains continued, though not severe. Some days passed on in this way. One evening when the patient was replacing himself in his bed, which he had quitted for an hour or two, his features suddenly altered, and he died unexpectedly. The *post-mortem* took place fourteen hours after death. The membranes of the brain were pale: the encephalon presented no trace of sanguineous congestion; when sliced it scarcely presented any red points. Very little serum in the ventricles. Nothing remarkable in the remainder of the nervous portions contained in the cranium, nor in the spinal marrow or its nerves; neither was there any thing remarkable in the thoracic ganglia of the great sympathetic, in the nerves which are sent off from them, in the semilunar ganglia, or in the different abdominal plexuses. Healthy state of the pulmonary parenchyma, as also that of the heart and its vessels. Nothing remarkable in the abdomen, except the very slight lesions of the digestive tube already noticed. Again, there are other individuals affected with lead-colic, whom we have seen die unexpectedly, though they had not previously presented any remarkable nervous symptom, and in whom also the *post-mortem* examination did not detect any appreciable lesion in the nervous system.

ARTICLE III.

TREATMENT OF THE EFFECTS PRODUCED BY LEAD PREPARATIONS.

Several eminent physicians treat lead-colic at the present day as Haen treated it long since, by a method purely antiphlogistic. Unquestionably seve-

ral patients treated in the ordinary way recover perfectly well; but we think it right to remark with respect to this matter, that every time the colic is assuaged the patients are free from it spontaneously at the end of a longer or shorter time, provided they cease to handle lead. It is not our object to consider here the results of such a practice, we merely state what we have seen; for we are not drawing up a treatise on pathology, we are merely collecting materials. Now, from five hundred cases newly treated in the wards of M. Lerminier, labouring under affections produced by lead, we have no hesitation in drawing the four following conclusions with respect to the treatment of these diseases: —

1st. Lead-colic, treated by bloodletting and emollient drinks, has in general a much longer duration than colic treated by the method called that of la Charité.

2dly. Many colics which have resisted the antiphlogistic treatment, yield promptly to that of la Charité.

3dly. We never have seen the latter treatment fail in removing colic, sometimes only it must be recommenced three or four times consecutively in order that the cure may be complete. In other patients all the symptoms cease the moment that evacuations upwards and downwards have been procured.

4thly. The treatment of la Charité, when conducted with prudence and administered at the proper time, we never found to occasion any species of unpleasant consequence: it is certainly very remarkable that such powerful drastics can be brought in contact with the intestinal mucous membrane without inflaming it, without lighting up fever, without modifying the state of the tongue, or producing disturbance of any kind; but it must not be forgotten that the digestive tube is then placed in a very peculiar condition. Do we not see in the same manner certain therapeutic agents in certain nervous diseases no longer retain their usual mode of action? Thus, in tetanus, enormous doses of opium may be administered with impunity; in apoplexy too it often happens that tartar emetic no longer produces vomiting, nor do the most active lavements procure any alvine evacuation.

Workmen very often enter the Charité who, labouring for some time under lead-colic, have had leeches applied in great numbers over their abdomen, have taken baths, and have been put on milk diet. Some of these are relieved, but not completely cured: the constipation remains, abdominal pains, more or less severe, continue to be felt, etc. When they enter the Charité in this state they are soon cured under the influence of the drastic mode of treatment. We have seen several other patients who had not even derived the slightest relief from the employment of antiphlogistics, and whom the Charité treatment cured promptly and completely.

No doubt can be raised in these cases with respect to the real efficacy of the therapeutic method, its effects are too well marked. Observe and interrogate the patients; they have scarcely begun to have very copious evacuations up and down, when the intolerable pains which they felt cease as if by enchantment. Their countenance which became seriously changed, all at once reassumes a natural appearance; they congratulate themselves on their prompt recovery, and those who, having had colic more than once, were already cured of it by the Charité treatment, solicit it earnestly when they are again attacked, and feel no doubt of its success.

When there is fever, and when pressure on the abdomen perceptibly increases the pain, must we also employ the ordinary treatment? Our observation on this point is as follows: in several individuals the treatment, having been commenced notwithstanding these unusual symptoms, was of necessity discontinued, because the state of the patients became worse; but at other times this treatment, employed under similar circumstances, succeeded notwithstanding. According as evacuations were procured, the pulse returned to its natural

rhythm, the heat of skin was diminished, and the pains disappeared. In this second case is there but the mask of inflammation, whilst it really existed in the first?*

Do the different nervous symptoms which accompany or follow lead-colic, and which may also exist without it, yield to the same mode of treatment as this colic itself? The certainty of the success of this treatment is here much less. We think, however, that in such cases we should try it at first. We have in fact seen its employment completely remove either the pains of the limbs or their paralyses, or several other nervous phenomena already noticed.

We very recently met the case of a house painter, who, having never had colic, felt for nearly the last five months in the membranes of the head acute pains, which were at first considered as rheumatic, and ineffectually treated by bleeding, and both simple and sulphureous vapour baths. He entered the Charité, and was put under the ordinary treatment of lead-colic, and went out cured. With respect to the paralysis it must be still recent and incomplete, in order that it may disappear under the influence of the ordinary treatment of colic. If the case be otherwise it resists, and it then becomes necessary to employ medicines whose direct effect is to excite muscular contractility. For this purpose we have seen blisters applied to different points of the arms, and in the vicinity of the brachial plexus with variable success, divers frictions also, and stimulating douches, the different preparations of the nux vomica, either its extract or strychnine, or instead of the latter, another vegetable alkali, brucine, which, having a similar mode of action, may be more easily managed by reason of its being much less energetic.† The following facts will give an idea of the mode of action of these two alkalies, and of their influence on the paralysis produced by lead preparations; we shall add to them, for the purpose of comparison, some other cases wherein these same alkalies were employed in the treatment of other species of paralysis.

A.—EMPLOYMENT OF STRYCHNINE.

The strychnine given to the patients who form the subject of the following cases was the purest possible; it was entirely deprived of brucine, with which it continued mixed in the first preparations of it by Mr. Pelletier. It was given in the form of pills, some containing only one-twelfth of a grain of the alkali, and others one-sixth.

1. A house painter, who had had colic several times, entered the hospital having entirely lost the power of motion in both hands, which remained habitually flexed on the anterior surface of the fore-arm. This paralysis commenced about a month before; it had been treated without effect by stimulating frictions applied to the fore-arm. This individual took two pills, containing one-twelfth of a grain each, one in the morning, and one in the evening. He felt, to use his own terms, a sort of painful fremissement along the extensor muscles of the hands. On the three following days the same dose was given, and with the same effects. On the fifth, sixth, and seventh day, four pills were given, two in the morning and two at night: slight shocks of the limbs; spasmodic contraction of the extensors of the fingers, during which there was forcible retroversion of the fingers towards the back of the hand; the paralysis appeared to lessen. Pills were then given to the patient, containing one-sixth of a grain; one at first, then four after the lapse of eight days. During this time he felt

* We have lately employed croton oil at the Pitié in some cases of lead colic; speedy relief was the result of it, and a complete cure was promptly effected.

† I have shown elsewhere (*Journal de Physiologie Experimentale*, t. iii., and *Annales du Cercle Medical*, t. iii.), that six grains of pure brucine are necessary to produce the effects of one grain of impure strychnine, and of a quarter of a grain of pure strychnine.

some violent shocks. He soon left the hospital, complaining of nothing but a little weakness in the hands.

In this individual the dose of strychnine could not have been raised without danger beyond two-thirds of a grain per day.

2. Another painter was affected with the same disease as the preceding, and for nearly the same length of time. One single pill containing one-twelfth of a grain occasioned a slight trismus, and the commencement of tetanic rigidity in the muscles of the nucha, abdomen, and extremities. On the following day he took another pill, and being now somewhat accustomed to it, he experienced but some few spasmodic contractions in the extremities. After the lapse of six days, two pills were given, one in the morning, and one at night; there were violent contractions of both arms. The strychnine was continued at this dose for about fifteen days, at the end of which time the paralysis was removed.

3. A German, of a strong constitution, and affected for a long time with paralysis of the extensors of both hands, arising from the influence of lead, took a pill containing about one-twelfth of a grain, without feeling any effect from it: three pills were then given to him with impunity. On taking the dose of one-third of a grain, he began to experience some shocks; they soon ventured to give him a little more than one grain of strychnine. On taking this dose, the contractions became so strong, as to induce the necessity of reducing it to a single grain. This person did not experience any relief.

On comparing this case and the preceding, one may see how the action of strychnine may vary, in consequence of the varying susceptibility of different individuals.

4. A man who was in the habit of handling white lead had the same kind of paralysis as the preceding. A pill containing one-twelfth of a grain, occasioned rather violent trismus in him. On the next day another pill was given to him, and this time, as in the subject of the second case, he felt no effects from it. Two pills produced rather violent shocks in the limbs. In a little time the dose of strychnine was raised to two-thirds of a grain; but that dose could not be increased, in consequence of the tetanic symptoms which then manifested themselves. When the patient left the hospital, he was less paralysed.

5. In another individual paralysed like the preceding, the dose of strychnine was increased in twelve days to a grain; he had but some slight contractions. The dose was still increased; from that time there was a closing of the jaws, and a retroversion of the head. The patient became alarmed at this, and would take no more of the pills. He left the hospital without being relieved.

6. A person entered the hospital affected with incomplete paraplegia, which had been treated ineffectually by blisters, moxas, and cauteries, applied to the lumbar region; no deviation whatever of the spinal column. A pill containing one-twelfth of a grain produced no effect, two pills occasioned slight shocks of the lower extremities; the dose was raised to four every day (an entire grain). On taking this dose the patient felt rather acute pains in the lumbar region; there was at the same time rigidity of the lower extremities only; the paraplegia was perceptibly increased, the strychnine was stopped.

In this case the paraplegia was probably the result of a lesion of the spinal marrow, which the strychnine appeared to aggravate.

7. An old man had been affected for a long time with complete paraplegia; he took three pills containing one-twelfth of a grain each, without feeling any effect from them. Four pills (one-third of a grain) produced slight contractions in the four extremities. No more of them were given.

8. A man had remained hemiplegic after an old attack of apoplexy; a pill of one-twelfth of a grain was sufficient to occasion intense tetanic rigidity of the paralysed limbs. On the following days this person, though the strychnine was not continued, experienced violent headaches on the side opposite the

hemiplegla ; his intellects became dull, the hemiplegia increased ; in a word, he presented several of the symptoms which characterise softening of the brain. Did the strychnine produce in this case commencing inflammation around the old apoplectic focus (*foyer*) ?

B. II. — EMPLOYMENT OF BRUCINE.

The brucine pills given to the patients who form the subjects of the following cases, contained each half a grain of this alkali. From the experiments made on animals, we were satisfied that no injurious consequences would follow from this dose.

1. A mixer of colours had paralysis of the hands for about the last two months ; he took a pill without feeling any effect from it, two pills produced slight shocks in the arms, four pills occasioned rather violent contractions. He went out cured.

2. Another mixer of colours, who was also paralytic, took as much as four grains of brucine without any sensible effect ; in the dose of four grains and a half, he experienced a kind of troublesome formication in the arms ; in the dose of five grains, he felt some shocks of considerable violence, without any bad consequences. The paralysis was considerably diminished.

3. A house painter, who had paralysis of the hands, did not begin to feel any shocks till he took the dose of two grains. Three grains occasioned considerable trismus. The patient was but slightly improved.

4. A man engaged in the handling of lead, and paralysed as the preceding, experienced tetanic rigidity of the four extremities, after having taken three grains and a half of brucine. He was not relieved.

5. A paraplegic patient, after having taken only two grains of brucine, felt an acute pain in the sole of the feet, his lower extremities also became the seat of violent contractions. His state was not improved.

From these cases I think we may deduce the following corollaries :

1st. Pure strychnine acts on man, as the extract of nux vomica, but with much greater intensity.

2d. The action of strychnine is so energetic that the greatest precautions are necessary to be observed in its employment. Its effects also vary in a very remarkable manner, according to the susceptibility of the individuals. Thus, in one, one-twelfth of a grain is sufficient to occasion serious consequences (2), whilst in another the dose of strychnine may be increased almost with impunity to a little more than a grain (3).

3d. Brucine acts on man as on animals. Much less energetic than strychnine, since we may commence giving it with impunity in the dose of half a grain, it may be substituted with advantage, as a medicine, for the alkali of nux vomica.

4th. When considered with respect to their therapeutical properties, strychnine and brucine are found to be more or less effectual, according to the species of paralysis treated with them. When employed in cases wherein the paralysis is connected with an inflammatory state of the brain, or of the spinal marrow, they will in all probability aggravate all the symptoms. In persons who have remained hemiplegic after cerebral hemorrhage, the employment of these alkalies is most frequently unavailing ; there is even some reason to dread that they may produce an inflammation of the cerebral substance around the apoplectic focus (8). But there are cases where, as if by a sort of habit, the paralysis seems to continue even after the absorption of the effusion ; it may then yield to the alkalies of nux vomica and false angustura. In a word, these same alkalies appear to be principally efficacious against those palsies, whose cause does not seem to reside in an inflammatory lesion of the nervous centres ; such, particularly, is

that species of paralysis, to which persons engaged in lead manipulations are so frequently subject. The preceding cases attest the efficacy of strychnine or brucine in this species of paralysis : of nine individuals who were attacked, six were cured, or at least relieved. I might here cite other cases of paralysis of the same kind, which also yielded to the alkaline extract of nux vomica.

ARTICLE IV.

NATURE OF LEAD-COLIC.

Is this colic the result of gastro-intestinal inflammation? We can now answer this question in the negative. That would certainly be an extraordinary gastro-enterite of which no traces could be found on *post-mortem* examination; which, sufficiently severe to produce the most excruciating pain, should never excite fever, and which should be always cured with certainty by those medicines which were peculiarly calculated to exasperate this gastro-enterite, if it really existed. If there be any fact in medicine of which we are fully convinced, it is that lead-colic is not an inflammation. If we direct our attention to the different nervous symptoms which complicate it, and which may also exist without it, we shall be disposed to think that the symptoms which become developed on the part of the digestive passages, in persons exposed to the influence of lead preparations, are also the result of the disturbance occasioned by the latter in the functions of that part of the nervous centres which presides principally over the digestive tube. Lead-colic is, then, in our opinion, a neurosis, in which the spinal marrow and the abdominal plexuses of the great sympathetic appear to be the peculiar seat of lesion. The constipation seems to depend either on the abolition of the contractile motion of the intestines, or on the suspension of the secretion of the intestinal mucus.

ARTICLE V.

OBSERVATIONS ON CERTAIN MORBID STATES, WHICH, BY THEIR SYMPTOMS AND THEIR TREATMENT, BEAR MORE OR LESS RESEMBLANCE TO THE PHENOMENA OCCASIONED BY THE PREPARATIONS OF LEAD.

The symptoms of lead-colic sometimes manifest themselves in persons who were never exposed to the influence of any preparation of lead; it seems then, that the modification made by the action of lead on the nervous system may be produced spontaneously; from whence the same phenomena will result, which will yield to the same treatment, more or less modified. On this point, we shall cite the following fact which we selected out of several others resembling it at the Charité.

CASE 8.—Abdominal pains simulating those of lead-colic—Repeated employment of castor-oil—Cure.

An individual, thirty-eight years of age, of a strong constitution, had not been at stool for some days, when, on the morning of the 22d of June, he was seized on a sudden, at the time he was going to breakfast, with acute abdominal pains, the seat of which were principally around the umbilicus. At the time he took

an opiate mixture. In the course of the day the pains were a little mitigated, but during the night they reappeared with renewed intensity. We saw him on the next morning, when he was in the following state: countenance was pale and expressive of the most intense anxiety; the eyes were dull and sunk; the pains of the abdomen were very acute, and even intolerable; pressure neither increased nor relieved them; no stool; tongue natural; no vomiting; complete apyrexia; two ounces of castor-oil were prescribed; seven very copious alvine evacuations took place. In the evening the patient found himself considerably relieved; he slept well during the night. On the 24th he again took some castor-oil. On the 25th he no longer felt any pain. On the 26th some small red conical pimples appeared over the abdomen; two days after these spots disappeared. The patient went out perfectly well. — In this case the abdominal pains readily yielded the moment that alvine evacuations were obtained. In other instances we have seen these pains much more obstinate, and disappear at intervals in order to return again. We saw them in one case continue for more than a month, not constantly but so that they returned by irregular succession, which gradually became more distant, less severe, and ultimately terminated no longer to reappear. In this case, moreover, we observed a phenomenon which was not observed in the other patients; when the pain reappeared, a very hard tumour, seemingly formed by the intestinal convolutions packed together, presented itself in one point of the abdomen; this tumour continued as long as the pain was felt; it disappeared along with it, and then the abdomen again became soft and free from pain; there never was the least appearance of fever. At the commencement of this disease leeches were repeatedly applied to the abdomen without any benefit. Castor-oil was then given several times, which, every time it was given, produced very copious alvine evacuations; different preparations of opium were also given several times.

There is another species of colic which presents symptoms more evidently inflammatory than the preceding species, that which is attributable to the habitual handling of copper. It is frequently observed at the Charité in copper-founders, and in other persons who are employed in various kinds of copper works. This colic differs from lead-colic, 1st, in the less severity of the pain; 2dly, in the existence of purging; 3dly, in the greater frequency of an accompanying fever; in a word, it appears to be much more than lead-colic, the result of a real inflammation of the digestive tube. However, in such cases, we have frequently seen M. Lerminier successfully employ those active evacuants which form the basis of lead-colic; the number of the stools, thus artificially produced, then diminished, and after copious vomiting and profuse alvine evacuations had been obtained, the health was re-established. Would it not appear that the good effects of purgatives in such cases was owing to their promptly expelling from the system the coppery particles which occasioned the phenomena?

We shall cite here a single fact of this kind, remarkable for the symptoms of dysentery which existed.

Case 9.—Colic from copper—Symptoms of dysentery—Ordinary treatment of lead-colic—Rapid cure.

A copper founder, about fifty years of age, had been in the habitual enjoyment of good health. When he entered the Charitê, he had been suffering for about fifteen days with abdominal pains, which at intervals became so acute as to occasion faintness.

Since the last eight days he felt very painful tenesmus; he was tormented with a continual desire to go to stool, and then, after great straining, passed nothing but some thready mucus, frequently tinged with blood. The abdominal pain was not increased by pressure; the tongue had a natural appearance, the countenance was pale, and the features sharpened; there was but slight acceleration of the pulse without much heat of skin.

On the first day M. Lerminier ordered fifteen leeches to be applied to the anus. On the next day no improvement was observed; he then resolved on employing the treatment for lead-colic. From the second day, after copious evacuations, the abdominal pains were very much diminished, the tenesmus was gone. This treatment was continued; all the symptoms of dysentery ceased, and the patient soon left the hospital in perfect health.*

SECOND BOOK.

ON DISEASES OF THE LIVER, AND ITS APPENDAGES.

1. The liver is one of the organs whose diseases, by reason of their severity and frequency, have been most studied; and yet among the numerous alterations, of which it may be the seat, there are still several whose nature is far from being well determined, and whose symptoms are very obscure. What is now about to be presented to the reader is not a treatise on diseases of the liver, but some researches and observations on several points of the history of these diseases. Besides that a treatise of this kind does not enter into the plan of our work, we think that the time is not yet come, when we can publish with advantage a complete history of the diseases of the liver; those who may at a future period engage in such an undertaking, will be enabled to find some useful materials in our work, which is the principal end we have in view. In our first section we shall speak of affections of the parenchymatous structure of the liver; and in a second, of those of the passages for the excretion of bile.

SECTION I.

DISEASES OF THE PARENCHYMA OF THE LIVER.

CHAPTER I.

LESIONS FOUND IN THE LIVER AFTER DEATH.

2. Of the different alterations of the liver some are preceded or accompanied by a greater or less afflux of blood; in others, on the contrary, there is a real or apparent diminution in the quantity of blood which the liver should receive in its normal state: such is the first result to which observation leads. The morbid states wherein increase afflux of blood may be demonstrated directly or indirectly, are increase in the size of the liver, its hypertrophy, its induration, the formation of pus or of other accidental products within its parenchyma. The morbid states wherein it seems that a diminution in the afflux of blood

* Even in cases where the dysenteric symptoms are not produced, as here, by a specific cause, a treatment different from that which is properly called the antiphlogistic treatment may be employed with undeniable benefit. For the last two years we have given to all the patients labouring under dysentery, who were admitted into our wards at the Pitié, twenty-four grains of ipecacuanha. All, after having vomited more or less copiously, have been cured very rapidly, and from the second or third day at most after the administration of the ipecacuanha the symptoms of dysentery disappeared. In all the dysentery was rather slight, and was not accompanied by any febrile disturbance.

should be admitted, are its loss of colour and its atrophy. We may designate, if we will, the different morbid states of the liver where there is increased sanguineous congestion by the generic term *hepatitis;* but it then becomes necessary to understand the import of this term, and not to suppose that, once adopted, it will account for the changes of nutrition, as numerous as they are varied, which the hepatic organ may present: all that it indicates is the common element which concurs in the production of these changes, namely, sanguineous congestion. But what is the cause of the numerous differences of these changes? It cannot certainly be found in the duration or intensity of the sanguineous congestion; for whether it be short or long-continued, intense or slight, we perceive every kind of change of nutrition indifferently produced. For the development of each of these species, it is therefore necessary to admit certain peculiar elements whose nature escapes us, and whose existence, however, appears to me as clearly demonstrated as is that of that of the common element of sanguineous congestion. There are cases, moreover, where it is only by analogy and by the generalising of particular facts, that this common element can be admitted; for the symptoms did not discover it during life, and after death its existence is asserted or supposed only by considering the products found in the liver, products which we see become developed in other organs after sanguineous congestions, whose existence is in general very evident. This is the case with several accidental productions, as tubercles and cancers. It may happen also that even in cases where the liver is found receiving less nourishment than in its normal state, divested of colour and atrophied, this state may have been preceded, like the others, by a sanguineous congestion or an inflammation. In order to justify this assertion, I might find analogous cases in other organs; and in the liver itself I might show between these different cases an identity of symptoms and of occasional causes. Thus, for instance, of four individuals received into the Charité, in whom the origin of the affection of the liver seemed to have been external violence, and in whom also there had been at the onset of the disease pain in the hepatic region, the first presented a deep abscess in the parenchyma of the liver; the second hydatids; the third cancerous masses; the fourth diminution in the size of the organ. These facts are too important to be lost sight of. In admitting also as a consequence of a certain number of facts that atrophy of the liver may result from a primary inflammation of this organ, it does not by any means follow that such must be always the case.

Besides simple atrophy, and its loss of colour, there are probably other pathological states of this organ, the cause of which might also be fairly referred to a diminution and real retrogradation of the act of nutrition. What, for instance, is the fatty degeneration of the liver? If, in order to solve this question, we observe in what cases different fatty substances come to be developed accidentally in the system, we shall see that it is very frequently around or in the site of certain organs which are become atrophied; we shall find, moreover, that that which exists morbidly in man is a law of the physiological state in the animal kingdom; and that, for instance, in beings whose brain is but little developed (as in fishes, etc.), the place which the encephalic mass does not occupy is occupied by an accumulation of fatty substances. Is it not also in the place of the atrophied molecules of the liver that the fat is deposited. What again is the formation of the serous cysts in the substance of the liver? With respect to this point see what takes place in other organs. Should they be arrested in their development, serous pouches are found in them, so that it is possible that several of these cysts of the liver, considered as the result of its inflammatory state, attest probably the existence of an entirely opposite state of diminished nutrition. What is, in fine, the cause of those vesicular worms so frequently found in the liver? Would it be absurd to seek it in an atrophied

state of the parenchyma of the liver? We might say that nature, no longer able to nourish this organ, was now confined to an inferior process of organisation, and instead of producing the molecules of an organ of a mammiferous animal, she developed a hydatid. I give those different ideas merely as conjectures more or less probable, but which seem to me unworthy neither of examination nor discussion; they prove at least that there are still researches to be made.

3. The first study to be undertaken in order to arrive at any exact knowledge regarding the nature of the diseases of the liver, is to endeavour clearly to understand their anatomical characters. To arrive at this, the best method in my opinion is to commence at the consideration of the healthy state of the liver, clearly to determine this, and then to endeavour to ascertain the share which the different anatomical elements of the liver may have in the formation of its different changes of texture. This is undoubtedly the only road which can lead to any useful results. But is it practicable in the present state of science? We shall be able to judge of that by the detail of the researches in which I have been engaged on this head: in trying to enter on a route almost novel, I could not be expected to make much way, but I am obliged to take particular care not to stray from the path.

4. Two substances exist naturally in the liver: they are so arranged as to represent tolerably well the form of a sponge. One of these substances, of a more or less marked white colour, according to the case, represents the solid part of the sponge; it only contains some large vessels which traverse it without ramifying through it; consequently it contains but very little blood. In its areolæ the other substance is as it were deposited, which is red, extremely vascular, of a cavernous appearance, and appearing very susceptible, like all erectile tissues, of increasing and diminishing in size.

In what I consider the normal state of the liver, these two substances are distinct to the observer only when disease has rendered them more prominent. If in this presumed normal state we examine a slice of the tissue of the liver, we find it to consist of an intensely red substance, separated into several compartments by white lines of a slight tinge of rose colour, which interlace in different directions, and form as it were circumvolutions. Does the liver contain a great quantity of blood? The white substance becomes coloured, and the organ acquires a uniform red tint; this exists normally in the fœtus, and accidentally in the adult, under several circumstances which shall be noticed presently. On the contrary, should the liver contain less blood than is compatible with its physiological state, the white substance becomes at first very apparent, then in a still more advanced degree of this species of local anemia, the red substance itself becomes devoid of colour, and the liver presents a whitish tint, in which an attentive examination still discovers the two substances. These different shades of appearance in the liver depends solely on the proportions of blood which it contains, and such must be taken into account. But further, different changes may attack the two substances which I have just described separately or simultaneously, whence there will be occasioned in the liver different appearances which constitute so many morbid states. Let us study first the separate alterations of each of these substances.

A rather common alteration of the white substance is its hypertrophy. In the first stage this is marked by lines and circumvolutions, which remain very apparent, even in the case where the liver is most gorged with blood. In the second stage these lines are seen to become changed into patches more or less extensive; the white substance being thus hypertrophied becomes hardened, and may acquire the fibrous appearance. This hypertrophied substance modified in its form, in its consistence, and in its colour, might be readily taken for a newly formed tissue, did we not follow gradually its different stages. An error of this kind has in my opinion been committed by Laennec. The lesion of the

liver which he called cirrhosis, and which he considered as an accidental tissue, seems to me solely the result of a certain degree of hypertrophy of the white substance. This cirrhosis carefully examined in its different phases of development, seems to me to be no more an accidental tissue than the pulmonary granulations are, which I have elsewhere proved to be nothing else than partial inflammations of the lung.

I have already said that the red substance might be differently coloured and tumefied according to the variable quantities of blood which it contained. It may also undergo real hypertrophy, the result of which will be, according to the case, the granulated or lobulated appearance of the liver. At other times this same red substance undergoes an entire loss of colour, or else it becomes really atrophied; and in this case there is a diminution in the size of the liver. Finally, it is in the interior of this red substance that the different morbid secretions so often seated in the liver appear to take place.

5. The changes of these two substances separate, or combined in different ways, produce the several morbid states of the hepatic parenchyma. These morbid states are principally: 1st, different degrees of sanguineous congestions, active or passive, vital or mechanical; 2d, alterations of nutrition; 3d, alterations of secretion.

6. Sanguineous congestions of the liver are similar to those which may take place in any parenchymatous tissue, in the brain or lung for example. Sometimes the cause which produces them is purely mechanical; an obstacle, for instance, to the free passage of the blood through the right cavities of the heart, whence arises a reflux and accumulation of this liquid in the hepatic vessels. Sometimes this cause is not mechanical; but it does not yet consist in an excess of vitality, in what is called the *inflammatory stimulus*. Such are the congestions existing in the liver in scorbutic individuals. I know not whether such congestions may be called passive in the sense ordinarily attached to this term. But what appears to me very evident is, that nothing less resembles an inflammatory process than those sanguineous congestions which take place simultaneously in several organs in scorbutic persons. Every time I had an opportunity of opening the bodies of those patients, I found the liver very much gorged with blood; this liquid oozed from every part of it, and the tissue of the organ then presented a uniform red tint; a similar engorgement was detected in the spleen. In other cases the blood accumulates in an extraordinary manner in the liver, under the influence of an inflammatory stimulus. This active congestion may continue for a longer or shorter time, without any other alteration supervening, except in most cases a modification in the secretion of bile. If we would keep to mere observation, certainly such a state cannot be distinguished from what is called inflammation, nothing else is found in any of the other organs to prove their inflammation, before there is alteration in their texture; in all, as in the liver, this congestion, whatever be its degree or duration, is accompanied by an increase in the size of the tissue which is its seat, and most frequently by an increase in its normal secretion. In the liver, as every where else, this congestion may remain the only modification which the organ has undergone, and which returns immediately to its normal state the moment it ceases. But at other times it is the origin and commencement of a great number of changes which become developed in the organ wherein it is seated; and it must be considered as one of the elements of their formation.

Sanguineous congestions of the liver, whatever be their cause, may be either general or partial. In the first case, whatever be their degree, the size of the organ is increased; it is observed to pass more or less beyond the cartilages of the ribs, or to press the diaphragm upwards. Such an increase in size takes place sometimes with great rapidity, and disappears in the same way; this principally happens in those cases of hepatic congestions which accompany

diseases of the heart; often then, after bloodletting has been employed, and the circulation becomes less disturbed, the liver ceases somewhat abruptly to be any longer felt; it ascends behind the ribs, and redescends again, if the disease of the heart becomes exasperated. But from the sole circumstance that there is an habitual stagnation of blood in the liver greater than usual, there is a disposition to irritation of this organ, and, after a certain time, to the merely mechanical congestion of the liver there may be added a real active vital congestion; this latter state may continue alone, or be followed by different disturbances of nutrition. Thence the great frequency of consecutive diseases of the liver in persons labouring under organic affections of the heart.

In some cases the sanguineous congestion of the liver is but partial; red spots are found scattered over its surface or through its interior, from which a considerable quantity of blood flows on making an incision. Such partial congestions are seldom the result of a mere mechanical cause; for it is not easily seen why this latter should cause its action to be felt on one particular part of the liver rather than on another.

It is evident that in these different degrees of congestion the red substance of the liver performs the principal part.

These congestions, without any other alteration of texture, constitute a certain number of diseases of the liver, indicated during life by different symptoms which vary according to the intensity of the congestion, its extent, the rapidity with which it has taken place, and the cause which has given rise to it.

Not only under the influence of the conditions just enumerated may the vessels of the liver receive a greater quantity of blood than is allotted to them in their normal state, but moreover, whether there may have been previous congestion or not, they may become ruptured, and so give rise to hemorrhage more or less profuse, an effusion of blood into the parenchyma of the liver, a sort of hepatic apoplexy. The most remarkable case of this kind which I have seen is the following:

M. S. enjoyed tolerably good health, and had never presented any particular symptom indicating the existence of disease of the liver, when one morning on awaking he felt rather ill, and complained of some pains in the abdomen: he expressed a wish to remain in bed, and he was left alone in his bed-chamber. In a few hours after, some one went into his room, and he was found dead. I opened his body in the presence of some other physicians. The organs of the cranium and thorax, in which one might expect to find the cause of his sudden death, presented no change whatever. The peritoneum was found to be filled with a great quantity of black blood partly coagulated; several clots were accumulated principally between the diaphragm and the convex surface of the liver. Towards the centre of the right lobe, and on the convex surface, we discovered an opening large enough to admit the extremity of the little finger. This opening was the orifice of a cavity in the parenchyma of the liver, large enough to contain an egg, and filled with blood. A large vessel, which had been torn, opened on a point of this cavity: a stylet having been introduced, penetrated into the trunk of the vena portæ, of which this vessel was one of the principal divisions. The cause of death and the source of the hemorrhage were now manifest. The parenchyma of the liver had retained its healthy state around the accidental cavity which contained the blood.

Dr. Honore lately presented to the Academy a liver in which were several cavities containing pure blood. In this case we are not certain whether this blood was supplied by torn vessels, or whether it was the product of mere exhalation. In his excellent Essay on Abscess of the Liver, M. Louis has cited the case of an individual in whose liver there was found a cavity as large as a nut, containing a fibrinous coagulum of black blood arranged in concentric layers. No laceration was discovered in any of the bloodvessels.

7. The liver may, as we have already stated, undergo considerable changes in its nutrition, consecutively on a sanguineous congestion variable in intensity and duration. Among these changes, for instance, we must place its general or partial hypertrophy. The increase of size, which may also be general or partial, which it then undergoes, is no longer merely the result of a mere accumulation of blood in its tissue, but rather of an increase in the size or in the number of the molecules of the latter; in other words, under a given volume it contains more solid parts, or has greater density. If this hypertrophy of the liver be general, there is an increase of size in the entire organ; sometimes, however, this size is not increased, but the tissue is denser and harder, and there is more difficulty in dividing it with the scalpel. Thus in many cases of hypertrophy of the osseous system, the latter has not increased in size, but has only acquired greater specific gravity.

It may happen that hypertrophy of the liver exists only in one of its substances, the other retaining its normal state, or undergoing at the same time a real atrophy. If the latter occurrence takes place, there may result a diminution in the general size of the liver, though one of its anatomical elements may have a greater volume than usual. This is what occurs, for instance, in several cases of *cirrhosis*, which we have seen to be nothing else than hypertrophy of the white substance. At the same time that the nutrition of the latter has attained unusual activity, the red substance has undergone a sort of shrinking, and consecutively to its atrophy the size of the liver has diminished. The difficulty with which injections are made to pass into the substance of the liver in such cases, the ascites which almost uniformly follows this atrophy of the red substance, whence arises a sort of *ratatiné* appearance of the liver, seem to prove that there then takes place obliteration of a great number of the small vessels which constitute this red substance. Oftentimes also unequal hypertrophy of some granulations, whether isolated and thinly scattered, or numerous and clustered together, coincides with perceptible diminution in the size of the liver, which depends on atrophy of other portions of the red substance, or of the white substance.

Hypertrophy of the liver, whether partial or general, is most frequently accompanied by an increase of its consistence. It may exist with different shades of colour, the principal of which are the red, yellow, greenish, brown, grey, or even white tint. Several of these tints are often blended together, from which results the most varied appearances of the liver, which I shall endeavour to point out in the particular cases.

There are instances where the liver, with respect to its form, size, colour, and the proportion of its substances, appears to be in its natural state ; but its consistence is very much diminished ; its tissue is extremely friable ; it crumbles and is reduced to a pulp under the pressure of the finger ; it sometimes possesses not more consistence than the substance resembling wine lees, which fills the areolæ of the spleen. No doubt the analogy with that which takes place in other organs, and still more the cases wherein this softening of the liver has been observed to coincide with all the symptoms of hepatitis, should incline us to admit that this softening is the result of an inflammatory process. However, convinced as I am that a great number of softenings succeed inflammation, I feel some hesitation in admitting that this is the case for all ; I have not sufficient proofs to enable me to come to a final decision on this point. I ask every fair reasoning man, has he not met cases wherein a softening existing in the brain, stomach, liver, &c., he has still been unable to say that any species of sanguineous congestion, any process of irritation whatever, has preceded or accompanied the softening of which these organs were the seat ? In these difficult cases let us learn to doubt and to wait.

Persons have frequently spoken of an increase in the size of the lobulus Spi-

gelii, an increase so considerable that this lobe formed a tumour sensible to the touch. Among the numerous patients examined at the Charité and elsewhere during their life or after death, none presented this kind of alteration of the liver, which, according to several physicians, should be very common ; never during life have we been able to feel the lobulus Spigelii through the abdominal parietes, and never, after death, have we ascertained its hypertrophy independent of that of the rest of the liver. We must then consider those tumours formed by the lobulus Spigelii, an occurrence as uncommon as a tumour would be, formed either by an aneurism of the cœliac trunk, or by a disease of the pancreas.*

With respect to the two principal lobes of the liver, they are often found hypertrophied or atrophied separately one from the other. The right lobe, for instance, may be much larger than ordinary, and the left lobe consist merely of a very slight appendix. At other times the right lobe is, on the contrary, diminished in size ; it occupies but a small portion of its usual place, whilst the left lobe having become hypertrophied, extends much more than usual into the left hypochondrium, and may even be the cause of a dull sound on the inferior left side of the thorax. In this case the liver of the adult resembles that of the fœtus, in which the left lobe has greatly the advantage over the right in respect to size.

8. The last order of changes of the liver consists in the morbid secretions which may take place into its parenchyma. Thus, pus may infiltrate it, or an abscess may be formed in it.

Four leading circumstances may be noticed in which the liver becomes the seat of abscess. These abscesses are formed ; 1st, after external violence, which acts directly on the liver ; 2dly, after traumatic lesions of the brain ; 3dly, spontaneously as a termination of acute or chronic hepatitis : this case is more uncommon than the two preceding. 4thly, Finally, there are circumstances where the pus found in the liver does not appear to be accumulated in consequence of an hepatitis ; having been formed elsewhere, and carried into the torrent of the circulation, one might say that it has been merely separated from the blood in the interior of the liver. In such cases no symptom of hepatitis has existed during life : neither is any trace of inflammation, or of any morbid process whatsoever found after death around the purulent collection ; very frequently also similar abscesses are found at the same time in other parts, in the lung, spleen, brain, and in the subcutaneous and intermuscular cellular tissue ; and in none of these parts has the formation of pus been preceded by signs of inflammation, and lastly, this species of abscess is produced chiefly in given conditions of the system, namely, after capital operations, or puerperal metro-peritonitis, or when a profuse suppuration, which had been kept up for a long time, has been suddenly arrested. We shall cite at another time facts relative to these different species of abscess ; suppuration of the liver is, moreover, a very uncommon affection.

Instead of pus, the tissue of the liver may secrete different substances, sometimes yellow and friable, sometimes more or less resembling jelly or glue. These different substances, which, in consequence of differences oftentimes of trifling importance in their physical qualities, have been called by different names, either tubercles, or encephaloid substance, or steatoma, etc., agree in the common and important character of being secreted within the substance of the parenchyma of the liver, and after sanguineous congestion more or less evident, just as pus may be secreted there. They are even formed more frequently than the latter. Sometimes the tissue of the liver is still apparent where these secretions

* In a case of cancerous affection of the pancreas already alluded to, there was no appreciable tumour during life through the abdominal parietes.

exists ; it is infiltrated with them, and at the same time more or less injected. Sometimes in order to find the tissue of the liver, it is necessary to have recourse to careful dissection or to maceration, and then we see shreds of it in the midst of foreign matter, in the same manner as in a phlegmon we find shreds of the cellular tissue and of muscle in the midst of pus. The tissue of the liver is then not merely compressed, it appears to be actually atrophied and absorbed ; dissection has also convinced me of an important fact, namely, that the numerous vessels oftentimes seen to ramify in the midst of white encephaloid masses, do not in many cases belong to them ; that they merely traverse them, and that they are merely a remnant of the tissue of the liver to which they belong. At a later period these vessels may burst, and the result will be hemorrhages more or less profuse.

Thus in more than one case the organization of a great number of *accidental* productions belongs less to the latter than to the tissues within which they are developed.

CHAPTER II.

SYMPTOMS OF DISEASES OF THE LIVER.

9. These are few in number, often too obscure, or too slightly marked, to enable one always to state positively the existence of an affection of the liver. Under other circumstances this is not doubtful, but it is very difficult, or even impossible to determine its nature ; for on the one hand similar symptoms are often produced by several affections of the liver, which present the greatest differences with respect to their anatomical characters ; and on the other hand, it cannot be said that in any of these affections any one invariable symptom is found. Jaundice, for instance, may be absent or present in all the diseases of the liver ; there is but one case in which it is never wanting, that is, when the ductus choledochus is obliterated. The object of the present chapter shall be to present certain data furnished by observation, which assist, 1st, in detecting the existence of a disease of the liver ; 2dly, in determining its nature.

10. The symptoms which manifest themselves in diseases of the liver are either local or general ; there are many cases where the latter are much more marked than the former. We shall speak of both in their respective order.

ARTICLE I.

LOCAL SYMPTOMS OF DISEASES OF THE LIVER.

11. Among the local symptoms we first find pain ; this is as variable in its intensity as in its seat ; in some patients it is wandering, changeable, and like in this respect to a rheumatic pain ; it may exist over a considerable extent of surface ; thus in some individuals all the lower part of the chest on the right side, and the hypochondrium of the same side, are the seat of a painful sensation. At other times it exists only in some circumscribed points ; thus it is observed, 1st, towards the epigastric region ; 2d, along the cartilaginous edges of the false ribs of the right side ; 3d, in a more or less limited point of the right hypochondrium ; 4th, towards the lower and lateral part of the thorax on the right side, and sometimes over a very circumscribed extent, as, for instance,

over the space occupied by the last false rib of the right side; 5th, posteriorly on this same side near the vertebral column, and if the pain is then felt a little high up, it may be readily confounded with the dorsal pains of phthisical patients; 6th, in the left hypochondrium, in the place ordinarily occupied either by the great cul-de-sac of the stomach or by the spleen; 7th, in different points of the abdomen, such as the umbilicus, the flanks, &c., if they are occupied by the liver now increased in size. There are other pains which are felt not only in parts occupied by the liver, but also in parts more or less remote; they are purely sympathetic, and are the result of mere nervous irritation. Thus we have for a long time noticed, without being able to account for it, the fixed pain in the right shoulder, which accompanies certain affections of the liver; this pain we have found to exist less frequently than has been said; however, in more than one case we have found it to exist in a very marked manner. These sympathetic pains may again be seated in other parts. We shall always hold in recollection the case of a patient whose liver was found to contain an immense number of what are called cancerous masses. He had never complained of any pain in the region of the liver; but the two sides of the chest became from time to time the seat of a very painful sensation, which soon extended to the arms, and as far as the hand; the hand was also the seat of a very troublesome sense of formication, sometimes very acute, lancinating pains, passing like flashes of fire, off one or other of the arms. We found nothing after death which could explain these symptoms. We have seen other patients who complained only of pain in the head; this pain may even be sufficiently intense and constant to engage exclusively the attention of the patient, the affection of whose liver was not indicated to him by any local affection. Again: a very extraordinary phenomenon which some individuals present who are affected with liver disease, is an intense and very troublesome itching of the skin: this symptom principally exists when there is jaundice; but it may also exist where the skin has retained its natural colour.

The pains felt in the region of the liver, or in the place which it occupies, from disease, may be continued or intermittent. In both cases they are sometimes very severe, and are felt spontaneously without being increased by pressure; at other times pressure increases them; at other times again it is only when pressure is employed that any pain is felt. There are some persons who suffer only when they walk, when they are in a vehicle, or when they ascend or descend along an inclined plane, or when they lie on either side.

A fixed pain in the region of the liver is often the first symptom which excites suspicion that this organ is diseased. Some persons have felt for a great number of years no other symptom with respect to the liver, except a more or less acute pain which returns at intervals; their complexion was at most a little yellow; in other respects the region of the liver was soft, digestion generally good, and the function of nutrition went on rather satisfactorily; but a period comes when the old pain becomes more acute at intervals; and when it is thus awakened with unusual severity, fevers sets in, traces of jaundice often manifest themselves; at a later period these intermittent symptoms become continued, and the existence of a severe disease of the liver is no longer doubtful. We have already spoken of those cases wherein the pain forms so predominant a symptom, as to form a separate disease under the name of hepatic colic. In other individuals the pain does not supervene till a long time after other local or general symptoms have already announced the existence of an affection of the liver. Oftentimes again this affection runs through all its stages, and carries the patient to the grave, without any pain having ever been felt in the hepatic region.

Several parts situate in the vicinity of the liver may be the seat of different pains which have been often confounded with pains of the liver; and it must be

acknowledged that it is often difficult to avoid such a mistake. Those parts, the pains of which simulate those of the liver, may be situated either in the thorax, or in the abdomen. In the thorax we find certain inflammations of the pleura, and particularly of the diaphragmatic pleura, which indicate their existence by a pain seated entirely in the inferior part of the right side of the thorax, along the cartilaginous edges of the ribs, and as far as the right hypochondrium. One may then feel disposed the more readily to believe in the existence of hepatitis, because jaundice is observed to supervene, which is probably the result of a sympathetic irritation, communicated from the diaphragmatic pleura to the convex surface of the liver. We certainly have in such cases found an inflammation in the pleura, and no appreciable alteration in the organ which secretes the bile.

In the abdomen a partial peritonitis occurring in the vicinity of the liver, an acute or chronic inflammation of the pylorus, or of the commencement of the duodenum, a nephritis even, or tumours developed between the liver and kidney, or beneath the gastro-hepatic epiploon, may give rise to pain which it would often be difficult to distinguish from pain seated in the liver.

From the existence of pain, its seat, nature, severity, and the time of its appearance, can we discover on what species of affection of the liver it depends? This has been several times attempted, but in most cases the rules laid down on this point may be overturned by exceptions almost as numerous. Thus it has been said that what are called cancerous affections of the liver are accompanied with acute, lancinating pains, considered to be very characteristic; and yet on perusing our observations on this head we find, on the one hand, that these pains have been observed in persons who had other affections of the liver, and on the other hand, we find that persons labouring under cancers of the liver, with very little or no pain, are almost as numerous as those who have felt acute pain.

It is not uncommon to find after death cellular adhesions more or less numerous uniting the liver either to the diaphragm, or to the abdominal parietes. With these adhesions we think we may connect those pains, whether acute, slight, continued, or intermittent, which some individuals complain of in the right hypochondrium. These pains, every time they become exasperated, are often accompanied by marked disturbance in the functions of the liver, without the latter being itself diseased.

Extremely acute pains are sometimes felt in the hepatic region, which cannot be accounted for after death by any lesion of the liver, or of its excretory ducts. This is the case of certain hepatic colics. This single circumstance, and still further, the character of these pains, their intermittent nature, the good state of health which often exists in the intervals between them, induce us to think that these pains principally have their seat in the numerous nervous filaments distributed to the liver, which arise from the pneumogastric nerve, or from the great sympathetic. We have additional proof that these pains belong to the liver, because they are often accompanied with jaundice, which disappears with them, or which may continue a longer or shorter time after them. There is nothing astonishing in this case in the affection thus modifying the biliary secretion, as we know the nervous influence evidently modifies many other secretions, as that of the tears, of the saliva, the urine, etc. Tic-douloureux is also accompanied with a vitiated secretion of the buccal glands.

3°. There are some diseases of the liver, which *most ordinarily* produce but very dull pain, or no pain at all, as in several of its chronic affections; the development of hydatids in its substance, its fatty degeneration, its induration, its different species of general or partial hypertrophy (granulations, cirrhosis, etc.), in a word, its atrophy, which also may be general or partial. In this latter affection where the liver forms no tumour, it may be anticipated how obscure

the diagnosis must be in consequence of the absence of pain. Thus it can only be conjectured from the existence of some general symptoms to be spoken of hereafter. It must not, however, be forgotten, that in several cases where the affection has become completely free from pain, when it is observed, there was a period, towards the onset of the disease, where pains more or less acute existed.

12. The modifications which the liver often presents with respect to size may be detected during life, if there be an increase in this size ; and sometimes also when it is diminished, this diminution of size may be detected : 1st, by examining the form of the abdomen, and of the lower part of the chest on the right side ; 2dly, by the touch ; 3dly, by percussion.

There are some cases wherein the eye can detect the existence of a tumour in the right hypochondrium ; the abdominal parietes are raised by it ; and we may sometimes distinctly trace the thin edge of the liver through these parietes ; this organ sometimes becomes very manifest after the operation of paracentesis. The eye itself is then sufficient to detect the existence of disease of the liver. In other cases the signs are not so well marked. By the eye we can only detect the existence of a tumour in either of the hypochondria, or in the epigastrium. But other signs are necessary in order to arrive at a knowledge of the nature of this tumour. In some patients the portion of this viscus concealed behind the ribs may have increased in size so as to throw them out, particularly at their cartilaginous portion, and thus produce a singular deformity in the inferior and right side of the chest. We then observe the anterior surface of the last ribs and of their cartilages become superior, their upper edge become posterior, etc. The last rib being pushed out becomes very perceptible to the eye.

The *touch* yields more and more varied information than that obtained by the eye. In several persons labouring under affections of the liver, with increase in the size of this organ, nothing else is ascertained on feeling the abdomen, but unequal resistance on pressing on both sides of the linea alba. Thus, whilst the abdominal parietes in the left hypochondrium may be readily depressed, and the hand plunges to a considerable depth without meeting any obstacle, in the right hypochondrium, on the contrary, the abdominal parietes are tense, as if a solid body situate behind them prevented them from yielding to the depressing power of the hand. There are many cases of disease of the liver where this inequality of softness in the two hypochondria is the only sign of the tumefaction of this organ.

At other times it happens that, in the right hypochondrium, we can circumscribe a body which is prolonged behind the ribs, and which, by its form and its situation, seems to be the liver in a state of enlargement. But in order to ascertain it fully, the manner of practising the touch is not indifferent. It is sometimes sufficient merely to apply the hand over the hypochondrium, and to press it regularly from before backwards in its different points ; then by way of comparison, to examine by the touch the other parts of the abdomen, and always after the same manner. It is likewise necessary to employ the examination by the hand, the patient being placed in different positions, either lying on his back, or on either side, sitting down, or standing up. Oftentimes in thus examining with the hand the tumour whose presence is detected cannot be circumscribed, its limits being undefined. Another process must then be employed. Carry the hand over the hypochondrium, so placing it, that all the fingers being extended and approximated to one another, with the exception of the thumb, the entire external edge of the index finger may touch the abdominal parietes. Press the hand in this precise direction from before backwards ; then carry it quickly from below upwards, bringing its ulnar edge close to the parietes of the abdomen, and constantly pressing with its radial edge in this new direction. By

proceeding in this way we may often succeed in circumscribing accurately the thin edge of the liver. Sometimes, again, this organ presents over its entire extent as far as is perceptible to the touch a smooth, uniform surface; sometimes abnormal elevations are detected in it; whilst sometimes it presents points where it is really depressed, and as it were excavated; it would appear that in these points it has undergone a loss of substance.

It is not in the right hypochondrium only that the liver may be felt by the touch; there are scarcely any points of the abdomen where its existence may not be detected by these means. First, it may be felt simultaneously in the right hypochondrium, in the epigastrium, and in the left hypochondrium. The diagnosis then presents but few difficulties; in fact we feel, and sometimes see, the tumour come out, in a manner, from behind the ribs on the right side, and extend from thence over the points now mentioned. It may be limited to the epigastrium, or advance more or less into the left hypochondrium; more than once have we traced its course thus from right to left. The hepatic tumour, having once reached the splenic portion of the abdomen, may terminate there in different ways, either by forming there a sort of rounded mass, the limits of which are not readily found, or by forming a sort of tongue with thin edges, which may still be felt through the abdominal parietes.

The diagnosis becomes more difficult, when the tumour formed by the liver does not exist in the right hypochondrium, being confined to the epigastrium or left hypochondrium. This occurs when the liver is unequally enlarged, and when the left lobe is in a state of hypertrophy, in which the right lobe does not participate. In the former case it may be taken for a tumour of the stomach, and in the latter either for the same, or for a tumour of the spleen. But by attention and practice one generally succeeds in distinguishing these different cases. For tumours formed by the stomach very rarely extend behind the ribs; they are in general more or less moveable. The epigastric tumours which are formed by the liver may be almost always traced behind the ribs; they are limited exactly to the left hypochondrium, whilst on the right they are felt to disappear imperceptibly, and without its being possible to say where they terminate. They are in general much less moveable than tumours of the stomach. This state of the digestive functions may also serve to throw light on the diagnosis, but yet only in a secondary way; for in several chronic affections of the liver, there exists at the same time gastritis, and, still further, the liver may, by its mere presence in the epigastrium, compress the stomach, and embarrass its functions, With respect to tumours formed by the spleen, their direction which is ordinarily oblique from above downwards, and from left to right, and the point from which they commence, may distinguish them in most cases from tumours of the left hypochondrium formed by the left lobe of the liver.

The liver may occupy other points of the abdomen, and be detected there by manual examinations. It has been seen to occupy the umbilical region, the flanks, to touch the crest of the ileum, to descend even nearly as far as the pubes, and to occupy, in a word, almost the entire abdomen. The cases wherein it is separated only one or two fingers' breadth from the crest of the right ileum are not very uncommon; those wherein it advances towards the hypogastrium are much less common.

Two principal circumstances prevent us in a considerable number of cases from feeling the tumour formed by the liver in one of the points just mentioned. The first of these circumstances is the presence of a considerable liquid effusion in the peritoneum; the second is the distension of the large intestine, either by fæces or by gases. This distension ceasing by stools natural or artificially brought on, we begin distinctly to feel a tumour, which till then had been imperceptible, or which at least could have been but barely suspected.

The liver may form a tumour, either in the epigastrium, or in either of the

hypochondria, without being really increased in size. This happens when an effusion formed in the right pleura is large enough to press the diaphragm downwards, and at the same time the liver, which then forms a greater or less projection below the ribs. This also happens when a tumour developed in the abdomen, near the liver, and formed either at the expense of the organs, or at the expense of the portions of the peritoneum which separate them, comes to occupy the place usually occupied by the liver. In one case, for instance, an encysted tumour developed between the kidney and the liver, had caused the latter organ to undergo a sort of oscillating movement, in consequence of which the liver pushed from the right hypochondrium, and inclining from above downwards, from right to left, and from behind forwards, formed during life a considerable projection in the left hypochondrium. It was clearly discovered that the tumour was formed by the left lobe of the liver; and further, it was natural to think that this lobe formed this considerable projection only because its volume was actually increased. This however was not the case, as the *post-mortem* examination proved.

Not only may tumours of the stomach, spleen, peri-hepatic peritoneum, and gastro-hepatic epiploon sometimes be mistaken for tumours connected with the liver; but there are even cases where organs situate at a very great distance from the liver in their normal state may, on becoming swollen and enlarged, approach the hypochondria, occupy them, and there form tumours which appear to depend on the liver.

In a woman labouring under encysted dropsy of the ovary, the tumour was disposed in the following manner: in the iliac region of the right side we felt a hard, uneven, bossilated body; we traced it obliquely from below upwards, and from right to left, to near the umbilicus, where it ceased to be perceptible. Above the umbilicus the abdomen presented its natural softness. But over the extent of some fingers' breadth, below the cartilaginous edge of the ribs of the left side, a second tumour existed, formed by a body which appeared to be irregularly rounded, without any inequalities on its surface. This body appeared to extend behind the ribs. In its form, situation, and relations, it closely resembled the left lobe of the liver unnaturally enlarged. And such was the diagnosis given on the case, some time after the patient's admission into the hospital. The lower tumour having very much increased, and its nature not appearing doubtful, the operation of paracentesis was performed, in which the interior of the tumour was penetrated, which had been considered as encysted dropsy of the ovary. A great quantity of the liquid flowed out; the tumour of the iliac region subsided; and at the same time, what was remarkable, the tumour of the left hypochondrium, which appeared to have no connexion with the lower one, changed its position, and descended to the level of the umbilicus. From henceforward it ceased to be considered as appertaining to the liver; it now appeared to be merely a connexion of the tumour of the iliac region, and, like it, to appertain to the dropsy of the ovary, of which it seemed to form the seat. But in this case why had it occupied till then the left hypochondrium, and why had it suddenly changed its position after being punctured? This might be explained. It might be supposed, in fact, that before this operation the superior part of the tumour of the ovary was kept elevated, and, as it were, supported, in one of the hypochondria by the inferior portion, which was distended with a great quantity of liquid; the latter having been let out, the tumour of the hypochondrium must necessarily change its place. The patient died, and an opportunity was afforded of verifying the diagnosis: the following lesions were found at the *post-mortem* examination: —

The peritoneum of the abdominal parietes was found united to that covering the viscera by very close adhesions; immediately behind these parietes an enormous tumour was found, which filled the hypogastrium, umbilicus, the two iliac regions, and the two flanks, the entire of the left hypochondrium, which it

occupied as far as the level of the fifth rib, and a part of the epigastrium and right hypochondrium ; it pressed the liver up very much, which ascended as far as the fourth rib, and the stomach, which was found on a level with this viscus. Before it the scirrhous epiploon was extended ; in the left flank the descending colon was perceived, and some convolutions of the small intestine, the principal part of which was concealed by the tumour. It was easily detached from the parts in connexion with it, and to which it was united only by cellular adhesions. Inferiorly it was connected with the uterus by the right Fallopian tube, and the ovarian ligament of the same side. No trace of the right ovary could be found : the left was intact. It presented, as it were, three distinct parts ; one situate in the left hypochondrium, and in the epigastrium, seemed to be formed of a hard and solid tissue ; the other, situate in the flank and right iliac fossa, presented the same appearance. Lastly, the portion which occupied the umbilicus and hypogastrium, and which connected the two preceding, was soft and of a shining appearance, and seemed to consist of a pouch full of liquid ; on making an incision into this third portion, a great quantity of a greyish purulent liquid was observed to escape. The cavity containing it might contain at least the head of a fœtus. On the inner surface of its parietes there existed from eight to ten tumours, which were on an average the size of an orange. When cut into they all presented a similar tissue — namely, myriads of fine filaments, of a red or white colour, which crossed each other in a thousand different directions, leaving between them areolæ filled with a liquid which was colourless in some, red or brownish in others, and very much resembling in consistence and tenacity the mucus of the nasal fossæ. The largest of the areolæ might hold a small filbert ; the smallest could scarcely contain the head of a moderate sized pin. It would be difficult, I think, to refer this tissue to any of those hitherto described. In some parts it resembled softened scirrhus, in others accidental erectile tissue ; the latter parts were very like a portion of spleen emptied of blood and subjected to repeated washing. The other parts of the tumour consisted of a similar tissue. It was enveloped through its entire extent by a thick, evidently fibrous membrane. Its external surface was covered by the peritoneum ; its internal surface, when examined in the great pouch, was wrinkled, of a red colour like wine lees, lined with an albuminous membraniform layer, resembling that which lines the parietes of pulmonary caverns. It presented, moreover, a considerable number of small white granulations, about the size of a grain of millet, which resembled very much the granulations raised on the internal surface of several hydatids, known by the name of acephalo-cysts.

This membrane might be easily divided into a great number of laminæ placed one over the other. In some points the innermost laminæ presented a deep black colour, under the form of broad patches or long striæ.

The great epiploon, as also the mesentery, were transformed into thick cancerous masses ; when cut into, they presented in several points a white, opaque tissue traversed by numerous red lines (encephaloid tissue in the state of crudity). In other points nothing was found but a sort of reddish detritus, and even red sanguineous effusions (softened encephaloid tissue). In other parts, with the white and hard tissue now described, a yellowish and friable tissue was mixed, which readily crumbled under the finger, like sulphate of lime saturated with water (tuberculous matter).

The interior of the liver presented three or four cancerous masses formed by the encephaloid tissue still crude, being each nearly the size of a filbert. The lungs on either side descended only as far as the level of the fourth rib. The heart was healthy, and was filled with liquid black blood.

13. If, after having passed in review the different varieties of tumours perceptible to the touch which the liver may present, we set about enquiring what

are the diseases of the liver in which these tumours are chiefly observed, we shall not be able to lay down any constant rule on this point. On the one hand, there is scarcely any one in which the form of the liver may not be modified, so as to give rise to a tumour discoverable during life; and on the other hand, all the affections of the liver may arise, become developed, run through their different stages, without the organ increasing sufficiently to form a tumour.

In the cases of simple sanguineous congestion, whether active and produced by a vital stimulus, or connected with a mechanical obstacle to the circulation, the liver may be so tumefied as to be felt in the hypochondrium and epigastrium. This tumefaction is sometimes very rapid; oftentimes, also, it is observed to disappear with as much rapidity as it had formed, either spontaneously, or after bloodletting carried to a greater or less extent. There are some patients in whom the right hypochondrium becomes thus tumefied, it then resumes its natural softness, and this occurs several times. Such intermittent tumefactions of the liver are principally observed during the course of certain organic affections of the heart. In most cases they are not accompanied with any other disturbance of the functions of the liver; there is neither any pain observed, nor trace of jaundice. Sometimes, however, the patients complain of a painful sensation, a sort of weight towards the hypochondrium, and a slight yellow tint is spread over the skin. After having thus appeared and disappeared several times, the tumefaction of the liver may remain permanent, and that, which at first was but a temporary sanguineous congestion, may become imperceptibly a serious alteration of texture.

It would be very difficult, in my opinion, to draw an exact line of demarcation in the liver, as in every other organ, between the highest degree of simple active congestion and inflammation properly so called. The latter may exist either in the acute, or in the chronic state, without producing any kind of tumour, and if, at the same time, no pain exists, the diagnosis will be very obscure. But in a great number of cases, acute hepatitis brings on tumefaction of the liver, and the latter may then be felt in the hypochondrium. This tumefaction may exist, and be formed very rapidly with or without pain, with or without jaundice. Sometimes it lasts only a few days, and disappears; in other cases it lasts for several weeks, and even for several months, and then disappears. It must be admitted that in such cases there was only engorgement of the liver, without any real alteration of its nutrition. This tumefaction, by inflammatory engorgement of the organ, may be formed rapidly, and may then have remained stationary, or else it is developed only in an imperceptible manner. In the former case the hepatitis, acute at its onset, passes only secondarily into the chronic state: in the second case it is primarily chronic. These different engorgements of the liver deserve attention so much the more, as they are unquestionably the very commencement of a considerable number of its organic affections, whether hypertrophy and induration of its substance, or cancerous degeneration, etc. It is these sanguineous congestions, acute or chronic, without any other alteration, which may be combated with advantage by different therapeutic means, whilst these same means appear to be generally ineffectual in treating most of the alterations of texture, of which inflammatory engorgement of the liver has also been the commencement. It is from not having sufficiently distinguished these different cases that the same remedies employed successfully for the purpose of removing several tumours of the liver, have completely failed in other cases which were apparently identical.

In these cases of simple engorgement* of the liver, the tumour which it forms

* The structure of the liver, such as has been described, accounts for the readiness with which these engorgements may take place, and also for their frequency; it also accounts for the rapid increase in size which the organ may take on.

presents a smooth surface, without projections or depressions. The same may happen with different alterations of texture. But further, in this latter case, another matter is often observed. Thus, in the case where the tissue of the liver is indurated, it often presents on its surface numerous inequalities, which arise from its not being equally hypertrophied in all its points. When cancerous masses are developed in the hepatic parenchyma, manual examination detects, more frequently than in any other affection of the liver, numerous knobs which raise the abdominal parietes. But what is very remarkable, it happens occasionally that after a longer or shorter time these knobs disappear, the place which they occupied becomes actually a cavity, and instead of an elevation, examination by the touch detects a depression. This indicates that the disease is taking a fatal course; where a projection is found which has succeeded to an elevation, we may be satisfied that a cancerous mass has undergone considerable softening.

Immense abscesses may form in the liver, without their being accompanied with any tumefaction of the organ perceptible to the touch. At other times, there may exist a tumour in the hypochondrium, but this tumour presents no other characters than those which belong to simple sanguineous engorgement of the liver. This I believe to be the most common case. Under other circumstances the abscess being situated very superficially has for its parietes anteriorly merely a very thin layer of the substance of the liver, which is in immediate contact with the abdominal parietes. Then by pressure judiciously made we may detect behind these parietes the existence of a cavity full of liquid; around this there is often felt a hard body, which is nothing but the portion of parenchyma surrounding the abscess.

The hydatids developed in the liver are contained there in a sac with fibrous parietes, which often forms a prominence on the exterior of the organ, and which may be detected by the touch. The tumour resulting from this usually raises a point of the abdominal parietes, and is perceptible to the eye. If we examine it with the hand, or press it in different directions, we are struck with its extreme resistance, and its great elasticity; this is conformable with its anatomical structure. These external characters seem to me so marked, that they may cause it to be considered at least as very probable, that the tumour perceptible to the sight and touch in the right hypochondrium, and which seems to be continued behind the ribs, is owing to the development of an hydatiferous sac. This species of tumour, when it is exempt from all complication, may exist for a long time without producing pain, or interfering considerably with the functions of the liver; without occasioning any sympathetic disturbance in the system, lighting up fever, or at all changing the general functions of nutrition. These circumstances may also serve to throw light on the diagnosis.

I have observed a remarkable termination of these tumours in the Charité; namely, the change of the hydatiferous sac into a purulent deposition (*foyer*). The patient had presented for a long time near the epigastrium, immediately beneath the cartilaginous edge of the right ribs, a round tumour, extremely elastic, about the size of an orange, without pain, or change of colour in the skin, the general health being still preserved. This tumour appeared to us to be a sac of hydatids. After some time it became the seat of a pain at first not very acute, which subsequently became lancinating at intervals; the features became changed, fever set in, considerable emaciation took place after a little time, profuse diarrhœa supervened, but a considerable time after the appearance of the different symptoms now described, and ultimately the patient died.

On opening the body we found on the upper surface of the left lobe of the liver a tumour corresponding to the point where it had been felt during life through the abdominal parietes. This tumour having been cut into, a great quantity of greenish, inodorous pus flowed from it, in the midst of which burst

and torn hydatids were observed to float. Almost the entire left lobe of the liver was taken up by an enormous cavity, in which were contained the pus and hydatids which had escaped on making the incision.

We thought it should be admitted that the tumour appreciable during life had at first consisted of a simple sac of hydatids; this sac subsequently became inflamed, its internal surface, instead of exhaling serum, had secreted pus, and then only that group of alarming symptoms appeared, in the midst of which the patient died. The state of the hydatids was remarkable. It is probable that they had ceased to live, when the pus began to surround them. Another time I found the debris of hydatids in the midst of an encysted abscess of the peritoneum; and now that I am on this subject I recollect that in a previous part of this work I cited cases, where tuberculous matter had been deposited around hydatids, and had by little and little taken possession of the cavity primarily occupied by these animals.

Other tumours occupying the left hypochondrium depend on different alterations of the gall-bladder; we shall consider them in another place.

14. Percussion of the inferior and right side of the chest must not be neglected among the means to be employed for ascertaining the size of the liver. There are cases where, at the same time that this organ forms a tumour in the right hypochondrium, in the epigastrium, or in other points of the abdomen, it forcibly presses up the diaphragm, ascends higher than usual into the thoracic cavity, comes into closer apposition with the ribs, and no longer allows the lungs to become interposed between it and them. Then the sound of the thoracic parietes, over all their lower and right portion, is more completely dull, and more extensively so than usual; sometimes even the left lobe of the liver becoming more developed, comes to apply itself to the last ribs of the left side, and there produces a sound similar to that frequently produced by the enlarged spleen in this same part. It must not be forgotten that the liver may thus be considerably enlarged, either upwards, towards the chest, or laterally in its left portion, without passing the edges of the ribs, so that then the increase of the dull sound in the points just mentioned is the only circumstance which can detect the increase in the size of the liver.

At other times, on the contrary, the sound of the lower part of the thorax on the right side is clearer than usual. This happens in cases where there is diminution in the size of the liver, and this sort of information is not to be neglected, when other signs incline us to suspect the existence of such a lesion.

15. It would seem that the liquid secreted by the liver should be changed when there is lesion of this organ. However, this is not always the case. There are some cases where the liver having been for a considerable time seriously diseased, the bile does not present either in quantity or quality any modification appreciable at least by our senses. On the other hand we sometimes find the bile perceptibly changed, though the lesion of the liver which has occasioned it entirely escape us. Oftentimes, for instance, I have met in the gall-bladder nothing but an aqueous or albuminous liquid, with a slight yellowish tint; the inner surface of the biliary ducts was not of a yellow tinge as usual, they contained a little liquid like that of the gall-bladder. I found this state of the bile in the three following cases: — 1st, when there was fatty degeneration of the liver, as if the secretion of bile was then succeeded by the secretion of fatty matter; 2d, in some cases of atrophy of the liver carried to an extreme degree; 3d, in some other cases where there was hypertrophy, induration of the hepatic parenchyma, a development of cirrhosis or of red granulations. It is probable that in these different kinds of organic lesions the anatomical element engaged in the secretion of bile becomes involved. The bile seems to me to deviate much less frequently from its natural state, at least to all appearance, in those cases where accidental productions — as pus, cancer,

tubercle, hydatids — existed in the liver, than in cases even where these productions occupied more than half, and even three-fourths of the entire substance of the liver. On the contrary, in several individuals who died of different acute or chronic diseases unconnected with the biliary apparatus, and whose liver seemed to be in the normal state, I have found this same serous bile both in the gall-bladder and in the principal ducts ; it seemed to consist merely of water, albumen, and a small quantity of yellow colouring matter. The knowledge of these facts I consider not devoid of importance. It tends to confirm an opinion which in England more particularly has at the present day numerous partisans, and according to which a great number of derangements of digestion are considered as depending on a vitiated secretion of bile. It is because the latter, they say, no longer flows into the duodenum, or enters it in a very altered state, that several individuals experience — 1st, a change in the number and qualities of the stools, which are scanty, devoid of colour, of too great consistence, etc. ; 2d, probably imperfect chylification, and consequently bad nutrition, marasmus, etc. This opinion, I think, can no longer be regarded as a mere hypothesis, the moment it is proved that in a certain number of cases the bile is really changed in its qualities. Now this follows from the facts just cited. But this almost total change of the bile into water and albumen is not probably the only alteration which it may undergo, it is only the most obvious. This is at least certain, that in dead bodies we find the greatest differences in the appearance of the bile of the gall-bladder, with respect to its colour, which varies from a bright yellow to the deepest black, with respect to its consistence, which presents so many degrees, from that wherein it flows like water, to that where it is like very thick syrup, and in which at length it becomes solidified. There are some species of bile, which, when brought into contact with the skin, excite in it a disagreeable sensation of acrid heat ; we may here recollect the experiments of Morgagni, who having placed some bile collected from different bodies in the cellular tissue of several animals, found that in some cases it acted merely as a foreign body where it was deposited, and that no bad consequences resulted from its absorption, whilst in other cases it produced an extremely deleterious effect. It would be well that these experiments were repeated and followed up. We know so little as to how the bile acts in aiding the process of digestion, that it is impossible for us to foresee what sort of influence a change in the qualities of the bile, in the proportions or nature of its elements, can produce in the latter function. A modification which appears to us very considerable has probably but little influence ; another which appears to us less important, is probably of much greater importance in perfecting the process of digestion.

These facts being laid down, is it in the power of art to restore the secretion of bile to its perfect state ; and for this purpose what means are to be employed ? It should be remarked, that in many cases where the appearance of the bile found in the dead body no longer seems to be natural, the liver itself is exempt from all appreciable change ; it seems merely that in consequence of some latent change in its vital properties, or in its molecular structure, it has lost the power of separating from the blood the elements of the bile in their ordinary proportions. English physicians say that they restore this power to the liver, and consequently that they re-establish the course of the bile, 1st, by irritating the intestinal mucous membrane by suitable purgatives ; 2dly, by the use of calomel, which, according to them, exercises a specific action on the secretion of the liver. In this way, they say, they bring about regularity in the alvine evacuations, they restore depraved digestion, bring back health and flesh to the patient, etc. Thus these same functional disturbances, which, in the school of M. Broussais, are considered as the result of different shades of gastro-enteritis, are elsewhere looked on as connected with a vitiated secretion of bile ; they are

treated with advantage, they say, by means which should necessarily aggravate the gastro-enteritis, if it did exist. The conviction of English physicians, with respect to the soundness of their theory and the efficacy of their practice, is so strong, that in my opinion every reasonable mind has some grounds for doubt, and consequently for examination on this point. If any one should wish to solve this question before having experimented, he would, I think, find himself very much embarrassed. And with respect to theory, that of the physicians of Great Britain rests on physiological ideas as sound and as defensible as the theory put forward by M. Broussais. With respect to pathological anatomy, it cannot afford any solution of the question ; for it points out very perceptible alterations in the qualities of the bile as clearly as it detects intestinal inflammations. Shall we calculate, in fine, the success of the two therapeutic methods? the difficulty will only be increased: for in England as many books have been written, as many cases have been cited, in favour of calomel, and of different purgatives for the removal of derangements of the digestive functions, as there have been facts published in France in favour of the employment of antiphlogistics under the same circumstances. In my own opinion, I think if we were to institute an experimental study of these two methods, for the purpose of comparing them, we should arrive at this conclusion, that each may be, and must be, employed according to the nature of the case. I can positively state on this subject that I have often seen the employment of purgatives rapidly remove certain disturbances of digestion, characterized particularly by anorexia or great irregularity of the appetite, by a sense of weight in the abdomen, which continued for a considerable time after taking food into the stomach, by troublesome borborygmi, by alvine evacuations alternately too frequent and too few. There was at the same time an habitual feeling of general distress, a state of physical and moral languor, yellowness of the face, dulness of the eyes, and foul tongue. The cases of this kind, where I saw purgatives succeed, are too numerous for me to consider them as exceptions. In fact, the utility of purgatives appears to me satisfactorily proved in certain morbid states of the digestive passages, which, for that very reason, I do think should not be referred to an inflammatory state. In theory, the advantages of such treatment might be accounted for by a vitiated secretion either of bile or of intestinal mucus. No doubt there is then some alteration in the secreting organ. But when it is affirmed that this alteration is necessarily an irritation, is not that going beyond the strict observation of facts?

The modifications in the qualities of the bile now under consideration are not the only alterations of this liquid which I have discovered in the dead body. One circumstance has struck me particularly in a considerable number of autopsies: that is, the prodigious quantity of bile which fills the intestinal canal in some individuals who during life had profuse diarrhœa. With respect to the liver it presents no appreciable alteration, only it is gorged with bile. The intestinal canal is sometimes seriously affected, its mucous membrane is inflamed, and ulcerated ; sometimes, on the contrary, it presents no other appreciable lesion, except slight injection of the vessels which pass over the mucous membrane or beneath it ; so that if, in the first case, it may be said, with M. Broussais, that the bilious flux has been consecutive on intestinal irritation, this connexion is no longer equally manifest in the second case. If an appeal be made to individual sensibility—if it be said that the irritation primarily fixed on the intestine has disappeared from the latter, and passed by metastasis to the liver, in my opinion that is but evading the objection by an hypothesis ; and, besides, might it not as well be maintained that the vascular injection, found in some points of the intestines, far from being a trace of primary inflammation which occasioned the flux, is, on the contrary, an effect of the latter? Is it not, in fact, very possible that the excessive quantity of bile, which in a given time is

brought in contact with the intestinal mucous membrane, becomes a source of irritation to this membrane? There is no doubt but that a moderate excitement of the digestive canal—such as that, for instance, produced by a mild purgative—is oftentimes sufficient to occasion a very copious flow of bile. Might not this effect, which is often occasioned by purgatives, become of great advantage in certain morbid states of the system? If we see several diseases become resolved at the same time that a fluxion is set up on the skin, on the kidneys, or on the salivary glands, why might not this same process, when set up on the liver, also possess its advantages in certain cases? Why might it not be excited artificially, as perspiration, the urine, and salivation are excited?

16. Whether the bile continues to flow into the intestine, or ceases to do so, we observe in a considerable number of liver affections, and even in certain cases where no real disease of this organ is discovered, the different internal and external tissues assume a yellow colour, which presents different shades; the result of this is jaundice, a disease, the nature and causes of which appear to me to be still very obscure; the following facts and remarks will probably not be devoid of utility in throwing some light on its history. Let us first ascertain the state of the liver in jaundice.

There is in the biliary apparatus but one lesion uniformly connected with the existence of jaundice, namely, obstruction of the ductus hepaticus or choledochus. I merely refer to it here, before I point out its causes and principal varieties.

At other times the biliary ducts are found quite free after death; and, during life, the nature of the stools did not admit of a doubt but they were equally free. However, there is jaundice, and to account for it we find different affections of the liver. But here we can no longer lay down a constant rule, as in the preceding case. For, 1st, all may be equally accompanied with jaundice, whether simple sanguineous engorgement of the liver, or the different degrees of hypertrophy and atrophy of its two substances, or of only one of them, or its softness, or its induration, or its suppuration, or its cancerous or tuberculous degeneration, etc.; 2dly, it cannot be said that one of these affections coincides more frequently with jaundice than the others; 3dly, they have all been seen to exist without jaundice. The latter, therefore, is not the necessary consequence of any of them; other conditions are necessary in order that it may appear.

In some icteric patients the liver and its appendages are exempt from all appreciable alterations; but lesions are found in organs whose irritation might extend to the liver, either by continuity or contiguity of tissue, or by sympathy. I have ascertained the existence chiefly of the three following lesions: 1st, of acute or chronic duodenitis in different degrees; 2d, of inflammation of the diaphragmatic pleura of the right side; 3d, of inflammation of the brain or of its membranes. This third species of lesion coincides much more rarely than the two former.

Lastly, in several cases of jaundice no alteration is found either in the liver, or in its appendages, or in the organs, which, by their situation or their nature, are capable of exercising any influence on the hepatic system. Among the individuals who were in this case, there were some in whom the primary disease had been jaundice. They had become yellow without having experienced any other morbid symptom. This yellowishness lasted in them from eight days to a month, when another disease suddenly carried them off. I have seen three cases of this kind; in the first death was the result of cerebral hemorrhage; in the second, it was owing to super-acute peritonitis; and, in the third, death took place suddenly, without the *post-mortem* examination presenting any lesion which could account for it. In two of these cases the total absence of colour in the stools showed that the bile no longer reached the duodenum; in the third case, the alvine evacuations were constantly yellow.

If we now inquire into the circumstances amidst which we observe jaundice to appear during life, and which may have some influence on its production, we shall find principally the following:

1st. Several acute or chronic affections of the liver, indicated by different orders of symptoms; sometimes jaundice prevails for the entire duration of these affections, sometimes it accompanies only one of the stages of their existence.

2dly. An acute or chronic gastro-enteritis.

3dly. No previous disease whatever; but a strong mental emotion, a great fright, a violent fit of anger, etc. The appearance of jaundice is then often instantaneous. What is the cause of it then? has the mental emotion occasioned duodenitis? that, to say the least of it, is extremely doubtful; and I should rather feel inclined to admit that the cause of jaundice should then be placed in the nervous plexus, so remarkable both for its size and for its double origin in the nervous centres of animal and organic life, which enters into the liver with the vessels, and with them is distributed through the organ. Who knows whether the sudden modification which this plexus may undergo in its functions, after a mental impression, may not have a powerful influence on the secretion of bile? Let us consult analogy, and it will lead us to an affirmative solution of this question. We everywhere see these same moral impressions change and modify the secretions, sometimes increase them, and sometimes diminish them or suspend them altogether. We may here refer to the influence of different species of emotions, on the secretion of tears, of the perspiration, etc.

4thly. Some persons, in the enjoyment of good health, are suddenly seized with an acute, lancinating pain, intolerably severe, continued, or returning at intervals, seated in the right hypochondrium near the epigastrium. After this pain, they are attacked with jaundice, which lasts for a longer or shorter time, then disappears till a new pain brings on a new attack of jaundice. I think that, in some cases, the cause of this pain, and of the subsequent jaundice, has been rightly referred to a calculous concretion in the biliary passages. But is that the only cause of it? In some persons the jaundice has disappeared with the pain, without their having ever passed a stone. To be sure it might be said that then the concretion produced the pain and jaundice merely by its presence in the hepatic duct, and that these two symptoms ceased in consequence of the passage of the calculus into the cystic duct, and thence into the gall-bladder; but then it should be found in the latter. Now, in an individual whose body I opened, who, a little time before his death, had complained of a very acute pain in the region of the liver with this jaundice, and in whom this jaundice continued even when he died, I found no trace of calculus either in the biliary ducts, or in the gall-bladder; this person also laboured under aneurism of the heart. It may further be observed, that very often very large calculi are found in the biliary passages, without their ever having occasioned any considerable pain; and that many persons have passed a great number of them, without having ever experienced any thing like those acute, violent pains, which resemble a neuralgia with respect to their mode of appearance, their returns, their nature, and their intensity: I would accordingly feel inclined to think that one of the varieties, at least, of the affection designated *hepatic colic*, is nothing but neuralgia seated in the hepatic plexus.

One of its most remarkable effects should be to modify, or, more properly speaking, to suspend the secretion of bile, so as to produce jaundice. What is there surprising in this, if this same effect is produced by a mere mental emotion? Is it not in a similar manner to the suspension of the secretion of the intestinal mucus, that the painful constipation of lead-colic seems to be owing, which also appears to be a neuralgia, seated in another portion of the plexuses of the great sympathetic? Do we not also see the most remarkable modifications in the secretion of the tears, and of the nasal mucus, accompany different neuralgias of the face? Again, among the proofs of the nervous influence over the

secretions, do we not know that in animals, in whom the nerves of the fifth pair no longer communicate with the encephalon, the surface of the eye and nostrils are remarkably dry? If all these facts prove beyond doubt, that under the vitiated influence of the nervous system, most of the secretions are sensibly modified, it must be granted that the same may happen with respect to the liver; and if, on the one hand, the symptoms observed during life resemble those of the neuralgic affections, of which other organs are the seat; if the *post-mortem* examination discovers nothing which can account for those symptoms, it must be acknowledged that the opinion which we have now expressed, and which consists in regarding certain hepatic colics as neuralgic, is at least extremely probable.

5thly. There are some individuals in whom jaundice arises, becomes developed, and terminates without having been either preceded or accompanied by any species of symptom which could at all indicate any affection of the liver, or of any other organ. These persons would not consider themselves as ill, if they did not know that they were yellow. Most commonly, in this case, the bile continues to flow into the duodenum, as is indicated by the nature of the stools. When this takes place, the appetite is retained, no disturbance presents itself in the digestive functions, so that then there is very little probability that the jaundice had its origin in irritation of the digestive passages, and particularly of the duodenum, unless it be admitted that there may be duodenitis without any species of symptom indicating its existence.

Such are the different states of the system in which icterus may appear. Hitherto we have not yet deviated from the strict observation of facts; but, if we wish to inquire how, in consequence of one of these morbid states existing in the liver or elsewhere, it happens that a yellow colouring matter comes to impregnate most of the tissues, and is observed also in the liquids, we should find many difficulties to solve. Many physicians think that every jaundice is produced by the bile, which, being absorbed in the liver, enters into the torrent of the circulation, and is carried with the blood into all the tissues; but such absorption stands in need of proof. What fact demonstrates it, what analogy even warrants us in supposing it, in those numerous cases where jaundice accompanies different organic diseases of the liver, or where it comes on after a strong mental emotion? Do we see that the nervous influence, under other circumstances, increases absorption? If we must choose an hypothesis, I would prefer the opinion according to which it is admitted that jaundice supervenes, when the liver, changed in its texture or in its functions, ceases to separate from the mass of blood the materials of the bile which are supposed to exist therein. These materials, to be sure, have been found only in icteric patients; but urea also has only been found in the blood of animals whose kidneys had been removed. A fair interpretation of this last fact has, I think, been given, by saying that the quantity of urea which exists in the blood normally, cannot be discovered in it, because it exists in it in too small a quantity, being eliminated by the kidneys according as it is formed. The same may be said of the absence of the materials of the bile in the blood, when there is no jaundice. The absorption of the bile would seem more natural to admit, in cases of jaundice where there is obliteration of the biliary ducts. But even in these cases the jaundice may be accounted for in another way: the bile then ceases to be separated from the blood, because this separation would then be unattended with any result. Nothing can now pass by the ductus choledochus, the liquid to which it affords a passage will be no longer formed. There surely is nothing more surprising in this than in the circumstance that, under the influence of an irritation which acts only on the intestinal extremity of the ductus choledochus, the bile flows more abundantly into the duodenum. In both cases there is equally a correspondence of organic actions. It is a particular application of the law of synergy, as laid down by Barthez.

It is possible, also, that in some cases the yellow tint of the skin does not depend on the presence of bile in the blood, but rather on a sort of general ecchymosis, which takes place in the reticular layer of the cutis. May it not be so in several cases of jaundice of new-born infants, and in the yellow fever?

ARTICLE II.

GENERAL SYMPTOMS, OR DISTURBANCES PRESENTED BY THE FUNCTIONS OF THE DIFFERENT SYSTEMS IN DISEASES OF THE LIVER.

17. The disturbance which these functions undergo is very variable, not only according to the different affections with which the liver may be attacked, but also in one and the same affection, according to its acute or chronic state, its different degrees of intensity, and more particularly according to the habit of the individual attacked. Of these alterations of function some are purely mechanical, such are those serous collections of which the peritoneum and several portions of the cellular tissue become the seat, when the liver does not afford as free a passage as usual to the blood which traverses it. Other alterations of functions are the result of different organic lesions, which almost always accompany diseases of the liver; observation, in fact, proves that in these diseases there is often a complication of gastro-intestinal inflammation, which also is sometimes primary and sometimes secondary to the affection of the liver. Other alterations of function should be referred probably to the bad qualities of the bile which comes into the duodenum; thence arise certain disturbances of digestion, whilst others, again, are merely sympathetic.

The symptoms resulting from these different alterations of function, are often more marked than the local symptoms spoken of in the preceding article. They may present themselves either after the latter, or before them; they may exist alone during the entire course of the disease, and then their cause is frequently undiscovered, until a *post-mortem* examination has taken place. They are sometimes observed to exist only in an intermittent form: in the intermission the disease of the liver sometimes remain manifest, being reduced to some local symptoms; the latter are sometimes either very obscure, or none at all. If the hepatic affection has as yet made but little progress, the patient's embonpoint is still retained, the strength is intact; and in the interval between the febrile disturbances, for instance, which are observed from time to time, and which may or may not be accompanied with tumefaction and pain of the hepatic region, the individuals enjoy good health, and there is no reason for supposing that any organ in them is seriously affected. If, on the contrary, the disease of the liver is more advanced, there remains, in the interval between these general symptoms, an habitual state of illness, a state of wasting, which puts it beyond all doubt that some important organ is seriously involved.

There are, again, diseases of the liver which, for the greatest part of their duration, do not in any way disturb the different functions. This principally happens in those cases where hydatids, even of considerable size, are developed in the liver, this organ not having undergone any other alteration. Very often, under such circumstances, the digestion is not deranged, the circulation remains in its normal state, there is not even emaciation, the colour of the skin is natural, and, as there is not most ordinarily in this case any pain, it follows that, in order to discover the disease of the liver, there remains most commonly no other sign but the tumour formed in the hypochondrium by the hydatiferous sac. But this tumour may even not exist; so that in more than one case of this kind it was only after death that there was anything to indicate the diseased state of the liver; and oftentimes we have been not a little surprised to find immense

pouches full of hydatids in the liver of persons in whom nothing during life could have excited any suspicion of any affection of this organ.

SECTION I.

DISTURBANCE OF DIGESTION.

18. The function of digestion is more frequently disturbed in the different diseases of the liver than any other function; from this disturbance symptoms arise often more serious and more alarming than those occasioned even by the disease of the biliary apparatus. But here first a question arises, namely, whether a great many diseases of the liver are not occasioned, in the first instance, by a gastro-intestinal affection. The observation of the symptoms inclines us to coincide with M. Broussais' opinion on this point, who admits that, in most of the cases of inflammation of the liver, there was duodenitis in the first instance. Sometimes, also, the *post-mortem* examination discovered no other change in icteric patients, except intense inflammation of the duodenum, which seemed to have extended to the biliary ducts. The examination of the causes under whose influence chronic hepatitis is frequently developed, would incline one to place the origin of it in the digestive tube. The result, in fact, of our observation is, that the great majority of persons who died of chronic hepatitis, whose history has been collected by us, had indulged freely in alcoholic liquors.* One can readily conceive how the the excitement, habitually produced by these on the digestive mucous membrane, by continuity of tissue to the mucous membrane of the excretory bile ducts, and thence to the hepatic parenchyma. And further experience has proved that alcohol, introduced into the digestive passages of an animal, is rapidly absorbed. Now, may not the alcoholic molecules, carried directly into the liver by the meseraic veins, directly produce a powerful irritation in this organ? Again, it would be possible that, under some circumstances, the irritation extended from the intestines to the liver through the medium of venous inflammation. M. Ribes first proposed this opinion. Careful dissection has satisfied this skilful anatomist that erysipelas is often accompanied by an inflammation of the veins; and from this he thinks that it would not be impossible, that in certain gastro-intestinal inflammations, the veins which arise on the surface of the mucous membrane should be attacked with inflammation; that this extended from the small meseraic veins to the trunk of the vena portæ, and thus reached the parenchyma of the liver. We have met two cases which seem to confirm this opinion. One of these was that of an individual who died in the Charité. He had presented most of the symptoms of a bad continued fever; at first, there was violent reaction, skin very hot and dry, pulse full, tongue covered with a yellowish coat and dotted with red points, weight in the epigastrium, diarrhœa; then painful tension towards the region of the liver, slight yellow tint of the conjunctiva and of all the cutaneous surface; after this time rapid prostration, tongue dry, teeth and lips dark-coloured, evacuations passed involuntarily, low delirium and death.

The *post-mortem* detected: — 1st, a little dotted injection towards the great cul-de-sac of the stomach, which was in the mucous membrane; the membrane was not softened; it existed in several patches, which, if put together, might equal about a five-franc piece; 2dly, a healthy state of the duodenum, jejunum, and commencement of the ileum (white appearance of the mucous membrane, slight venous injection beneath it); 3dly, considerable injection of the mucous

* These cases, of course, refer only to the lower classes of society.

membrane of the ileum in its lower third, as also of the cæcum; 4thly, intense redness of the inner surface of the inferior mesenteric vein of the trunk of the vena portæ, and of all its hepatic ramifications, as far as the scalpel could trace them. The liver itself was large, very red, and gorged with friable blood. The splenic vein was not red, nor was the vena cava, nor its divisions; but the redness reappeared in the right auricle of the heart, and in the ventricle of the same side; it was also found, but in a slight degree, in the trunk of the pulmonary artery. The aorta, on the contrary, had retained its natural whiteness. We carefully noticed this inequality of colour in the different parts of the vascular system, because we think it proves that where redness did exist, it could not be considered as a mere effect of sanguineous imbibition. For why should not the latter effect have been produced equally in every part, in the vena cava as in the vena portæ, in the aorta as in the pulmonary artery? The blood contained in these several vessels presented everywhere the same physical conditions. From this we think we may conclude that there was in this case a real inflammation of the abdominal venous system, which extended to the liver, then to the right cavities of the heart, and which commenced to attack the pulmonary artery when death took place. The disease had presented as it were two periods satisfactorily explained by the lesions found on the dead body. If we compare these lesions with the symptoms, we shall be inclined to admit, that at first there was but a slight gastro-enterite; thence the symptoms of bilious fever which existed at the commencement. Subsequently it was changed into an adynamic fever. Painful tension of the right hypochondrium, and commencing jaundice, was all that was then observed. Were not these symptoms owing to phlebitis, which on reaching the liver produced inflammation of it? It was so much the less probable that in this case the inflammation extended from the intestine to the liver through the medium of the mucous membranes, as the duodenum was found to be exempt from any appreciable change. It is not necessary to say that this case militates in favour of the opinion of MM. Bouillaud and Ribes, who make vascular inflammations perform a considerable part in the production of what are called essential fevers.

Another patient entered the Charité labouring under ascites. (We have given the case of this individual in another part of the work; a cancerous tumour was found in the pericardium.) At the *post-mortem* examination we found red induration of the liver; on making an incision into the veins of this viscus we were struck with the bright redness of their internal surface. On approaching the trunk of the vena portæ we observed that the internal membrane of this vein, and of its principal hepatic branches, might be detached from the subjacent tissues much more easily than usual; it was also much softer and more friable than in its ordinary state. In some branches a sort of pseudo-membrane lined the venous parietes in the form of a thin transparent and apparently inorganic web. The trunk itself of the vena portæ, as well as the principal branches which converge towards the liver in order to give rise to it, presented on their internal surface the same redness, and the same friability of their membrane. In the peritoneum there was a serous collection without any other trace of inflammation. In the digestive tube signs of chronic inflammation were found, such as the mammillated appearance and brownish colour of the gastric mucous membrane, the same colour in the duodenum, some ulcerations and remarkable development of the follicles, with a black colour around them towards the termination of the small intestine, in the cæcum, and at the commencement of the colon. It may be observed, that through the rest of the vascular system the internal surface of the vessels presented a white colour.

Several anatomical characters are here found combined to prove the existence of inflammation of the vena portæ and of its divisions, whether hepatic or abdominal. This inflammation coincided with double chronic inflammation of

the liver and digestive tube ; and here again it is possible, though it is not demonstrated, that the inflammation attacked successively, 1st, the intestine ; 2dly, the venous system, which carries the blood from this intestine to the liver ; 3dly, the liver itself. What warrants us still further in making this supposition is, that we find from our notes that the disease commenced by diarrhœa, which seemed to be the only affection for a year at least. It was not till after this that some slight pains began to be felt in the right hypochondrium. The patient had jaundice twice, and at a still later period ascites came on. This succession of symptoms indicates at least that the disease of the liver was consecutive to that of the intestine.

19. Whatever be the way in which irritation extends from the intestine to the liver, it may present itself in its primary and consecutive seat with numerous degrees, and in very different forms. First, in the intestine all the disturbance may be confined to mere excitement, whether a simple attack, as when after a slight excess at table, jaundice manifests itself, with fever and painful tension of the right hypochondrium ; or whether the attack be repeated, as when alcoholic liquors are frequently introduced into the digestive passages. In these different cases the excitement in the intestine does not seem to rise to the degree of inflammation, which, on the contrary, manifests itself in the more irritable liver. At other times there is really chronic gastro-enteritis ; whilst at other times it is during the course of a well-marked acute gastro-enteritis that hepatitis manifests itself. With respect to the forms which the latter presents, when it succeeds gastro-intestinal irritation, they are very varied. Sometimes it is chronic from its onset, gives rise to no well-marked local symptom, and it is not till a long time after it has commenced that some signs indicate its existence. Sometimes jaundice is the only symptom observed, which appears during the progress of an intestinal inflammation ; this is not attended either by heat or tumefaction of the hypochondrium. In this case the *post-mortem* examination may detect three states of the liver : 1st, an inflammatory state of its parenchyma indicated by intense redness, considerable sanguineous engorgement, and well-marked softening ;* 2dly, nothing unusual, at least in appearance, in the hepatic parenchyma, but perceptible tumefaction of the internal membrane of the ductus choledochus and ductus hepaticus, the result of which is complete or incomplete obstruction of these ducts ; 3dly, no appreciable lesion, either of the liver or of its excretory apparatus ; which is no proof that the latter has been the seat of lesion during life, as I shall endeavour to demonstrate presently. With these three states of the liver the intestine is found in different degrees of inflammation, and in different points of its extent.

In other individuals hepatitis consecutive to an intestinal inflammation announces itself from its onset by more marked symptoms ; for jaundice alone does not prove the existence of hepatitis. The patients feel some pain in different points of the right hypochondrium, or on the same side of the chest ; pain is felt in this same hypochondrium, &c. These different symptoms of hepatitis may present themselves but once during the course of chronic gastro-enteritis ; they may then either disappear or continue, either with or without intestinal inflammation. In other patients these symptoms appear and disappear several times ; in the same way, for instance, as in the course of chonic stomatitis, the salivary glands are often inflamed only at intervals, or in the same way as wherever a chronic inflammation continues, the inflammatory swelling of the lymphatic gan-

* In an excellent article on abscesses of the liver, M. Louis states that he found the hepatic parenchyma around these abscesses red and softened, which further proves that redness and softening of the liver should be placed among the lesions which inflammation may produce in the organ. I feel additional confidence in my opinions when I find them coincide with those of so accurate an observer.

glions in the neighbourhood appears only at intervals. But in these a period generally arrives when the engorgement becomes permanent. This also frequently happens with respect to the liver. When, during the course of a chronic gastro-enteritis, either attacks of jaundice have been seen to supervene several times, which were more or less prolonged, and were repeated at intervals more or less remote, or transient pains towards the region of the liver, or tumefaction of this organ equally transient, a period may also come when one or more of these symptoms become permanent; then it must be admitted, either that before this last period the affection of the liver, though not ceasing, was still so light as to indicate its existence only by intermittent symptoms, which supervened every time the affection became aggravated; or else, a thing which is more probable, that this affection was itself intermittent, subjected probably in its return to the state of the digestive tube.

20. Hitherto we have been considering only the case where the hepatitis seems to be consecutive to a gastro-intestinal inflammation. Another case more uncommon, but one which appears no less real, is that wherein the latter is, on the contrary, consecutive. More than once have we observed patients in whom no symptom had ever announced any disturbance whatever of the digestive functions; in them, however, there was unquestionably an affection of the biliary system, such as hypertrophy of the liver, red or white induration of that viscus, its cancerous degeneration, etc. During the course of one of these affections, and a long time after its commencement, the function of digestion only began to be disturbed. This case is one of the most favourable that can be met in cases of diseases of the liver; the patients under such circumstances decline, but very slowly, for the function of nutrition may still continue.

When a gastro-intestinal inflammation supervenes as a complication of an affection of the liver, it may be set up in a continued form, or be only transient, or return at intervals more or less distant. In the two latter cases its form is acute; in the former it may be either acute or chronic; if it is acute, nothing is more variable than the symptoms to which it gives rise; and from these different groups of symptoms there arise diseases of different aspects, to which particular names have been assigned. At first this gastro-enterite may indicate its existence principally by local symptoms. Thus, the tongue, which had retained its natural state as long as there was only an affection of the liver, is covered with different coats, becomes red, dry, cleft, etc. The whitish coat which covers it is dotted with bright red points. The thirst, which till then was absent, becomes intense; there is vomiting, pain in the epigastrium, and diarrhœa. We have sometimes seen, in such cases, diseases of the liver, which had proceeded slowly, which had as yet produced no serious alteration in the constitution, and which till then had not been accompanied by any disturbance in the function of digestion, become complicated with all the symptoms of cholera morbus, such as violent vomiting, very copious alvine evacuations, sudden cold of the cutaneous surface: in two or three days the patients died; and on opening the bodies we found a bright red injection of the greater part of the gastro-intestinal mucous membrane, without any other alteration; so that this inflammation was more remarkable for its extent than for its severity in each of the points which it occupied.

At other times, persons labouring for a long time under diseases of the liver, but still far from being exhausted, are seized suddenly with continued fever; their tongue becomes red, dry, and then black; their abdomen becomes tympanitic, diarrhœa supervenes; they fall into a complete adynamic state, and die rapidly. On opening the body, traces of acute inflammation are found in the digestive tube; this sometimes appears to have been intense; the mucous membrane is very red, softened, ulcerated in several points, and the severity of the symptoms is directly proportioned to that of the lesions; sometimes, on the

contrary, the gastro-intestinal inflammation appears very slight; in the mucous membrane or beneath it, there is observed merely some vascular injection, more or less extensive; but consider that this inflammation supervenes in an individual already exhausted by a chronic affection of an important organ; and from thence there exist in him conditions favourable to the development of a state of very great prostration, should any inflammation intervene, no matter how slight such inflammation may appear.

Whatever be the form under which attacks of acute gastro-enteritis may present themselves during the progress of chronic affections of the liver, it is important to know that they are one of the frequent causes of premature death in a great number of persons labouring under these affections. It may so happen that the disturbance of the digestive functions, after having existed at the onset at a period when the affection of the liver was as yet but little marked, disappears at a later period. According as the latter affection becomes more marked, the digestive function is found to return to its normal state, and does not become again deranged till a very advanced period of the disease of the liver.

SECTION II.

DISTURBANCE OF THE CIRCULATION.

21. The circulation may be disturbed in diseases of the liver, either sympathetically, as in the case of the heart and arteries, or in a manner purely mechanical, as takes place in several parts of the venous system, in the case where the blood contained in the vena portæ can no longer freely pass through the hepatic parenchyma.

A. — SYMPATHETIC DISTURBANCES OF THE CIRCULATION.

22. First, there are cases of affections of the liver where the circulation is not at all modified in any way. The strength, frequency, and rhythm of the pulse are natural, the temperature of the skin is not raised. This complete absence of fever is scarcely ever observed in acute hepatitis; but it is not at all uncommon in the numerous shades of chronic hepatitis, even in the case where purulent abscesses exist in the substance of the organ, and where cancerous masses have attacked a portion of it; this complete apyrexia is still much more common when there is but simple hypertrophy of the liver, whether of its entire structure, or of either of its substances, or when it has undergone greater or less atrophy.

In other cases the circulation presents a marked disturbance, though there may be as yet no fever, properly so called. This disturbance consists merely in acceleration of the pulse, without any change in the heat of the skin. Thus, unusual frequency of the pulse, without any other sign of fever, often accompanies the different chronic affections of the liver already mentioned.

Lastly, there may be fever, properly so called — that is to say, frequency of the pulse — with increase in the temperature of the skin and general indisposition. This fever may accompany the disease of the liver during its entire progress, a thing which is most frequently observed in cases of acute hepatitis. What is then remarkable is that sometimes, in such cases, the local symptoms which should indicate the existence of the hepatic affection are very obscure, nothing is observed but a continued fever, the non-essentiality of which can be proved only by a *post-mortem* examination. We once saw such a fever produced by an abscess formed in the liver. This was in the case of a young man who habitually enjoyed good health; after a long journey on horseback, he felt considerable indisposition, some headach, and great depression. For the first

three days he considered this as the result of fatigue, and kept quiet; but on the fourth day a shivering fit supervened, and feeling himself worse he entered the hospital. Two days after his admission, that is, about the sixth day of his illness, we saw him for the first time. He was then in a state of great prostration. The redness on the cheek bones contrasted strikingly with the yellow tint over the remainder of the face. The patient complained of an insupportable pain of the head, situate over the orbits. The mouth was clammy, without being bitter; the tongue presented a whitish, uniform appearance, without any red points; the appetite was lost, but there was neither thirst, nausea, nor vomiting, nor any pain either in the epigastrium or in any other part of the abdomen, every part of which retained its natural soft feel. There was some constipation. Pulse from 112 to 115; it was strong and regular; the skin was burning hot and dry. We tried to no purpose to ascertain what organ was affected in this case. (Bleeding and diluent drinks.) From the seventh to the eleventh day he continued in the same state; he was then bled from the foot with the view of relieving the headach. On the night of the eleventh day his intellects became disturbed for the first time, and on the next morning we found him completely delirious. (Leeches behind the ears, sinapisms to the lower extremities.) From the twelfth to the sixteenth day the delirium continued; it became necessary to tie him in order to prevent him from escaping from the bed. There was frequent subsultus, the eyes were alternately open and shut, fixed or rolling rapidly in their orbits; the pupils were dilated and contracted alternately. With respect to the digestive passages and the abdominal organs in general, there existed no new symptom. On the morning of the seventeenth day, the patient was still quite vigorous, as appeared from the energy of his movements, and the strength of his voice. Towards noon he died unexpectedly without any new symptom occurring. Since the last three days camphorated lavements had been given, and blisters had been applied to the lower extremities.

It was very evident that this person died of an affection of the brain; but he did not labour under it at the time he came into the hospital; up to the twelfth day of his illness he had presented no trace of it; however we must not lose sight of the intense pain of head which he complained of since the time we saw him, and which was so severe as to demand special treatment. The encephalon and its connexions were most carefully examined. The membranes of the brain retained their natural transparency and thickness; a few spoonsful of clear serum had been effused into the ventricles and at the base of the cranium. The substance of the encephalon presented nothing unusual with respect to its injection, colour, or consistence. The spinal cord was also examined; it, like the brain, was free from any appreciable alteration. The thoracic organs were healthy. The stomach presented here and there some small red points, which, all put together, would not exceed the breadth of a franc piece. Over the remainder of the digestive tube nothing was found but a little submucous injection residing in the large veins. Hitherto no lesion of any organ was found to account for the serious symptoms observed during life, when my friend Dr. Descieux made an incision in the liver, which on the outside seemed to be perfectly healthy. What was our astonishment, when at the bottom of this incision we found an abscess large enough to contain an orange! The pus was of a yellowish white colour, creamy and inodorous; it was in immediate contact with the substance of the liver, which to the extent of several inches around it was redder than elsewhere, and remarkably friable; slight pressure reduced it to a reddish pulp; this abscess was situated in the substance of the right lobe, not far from the convex portion of this lobe, which touches the diaphragm near the ribs. No other organic change.

Here then is an abscess of the liver which was formed without producing

either pain, or tumefaction of the organ or jaundice ; the only phenomenon occasioned by it was a continued fever ; the cause of it could not be discovered during life. We are very much inclined to think that an inflammatory process commenced in the liver, on the very day when, after the journey on horseback, signs of mere fatigue presented themselves. The intense headach of which the patient complained, was the first sympathetic phenomenon which the disease of the liver occasioned towards the brain. At a later period the function of this organ became more seriously deranged, and it was from the sympathetic irritation of the brain that the patient died. The original cause, however, of all the phenomena resided in the liver.

This case seems to furnish a very interesting fact in favour of the *localisation* of fevers, which, during life, seem not to be referable to any lesion of organs. Moreover it proves, contrary to M. Broussais' opinion, as has been already observed by MM. Boisseau, Bouillaud, Ribes, etc., namely, that the seat of what are called essential fevers is not necessarily in the digestive canal.

23. In some cases of chronic affections of the liver, there is ordinarily no fever, but at periods more or less remote, and which are not uniform in their return, a febrile disturbance supervenes, which may last for some hours only, or continue for several days. This accidental fever depends most frequently on a temporary exasperation of the lesion of the liver, which from being chronic tends to pass into the acute form. In this case, at the same time that fever manifests itself, we often see the local symptoms of the hepatic affections become much more marked. Pain, for instance, may appear, if it were previously absent, or become more acute, if it already existed. We know a lady, who for several years back has been labouring under an organic affection of the liver, which organ forms a tumour not easily circumscribed in the right hypochondrium. She experiences no pain in it except occasionally ; this pain becomes much more acute, generally under the influence of appreciable moral causes, and at the same time a very violent fever is observed to set in, accompanied often by delirium. An application of leeches over the right hypochondrium usually assuages these symptoms. Here the exasperation of the hepatic pain, and the success of the treatment adopted, do not allow us to doubt that the cause of the febrile commotion, and of the cerebral symptoms which accompany it, must reside in the liver, the chronic affection of which organ assumes for a time an acute character. In other persons the irregular returns of these accessions of fever appear to be less connected with the disease of the liver, than with an intercurring inflammation of the digestive tube.

24. Observation has proved that certain intermittent fevers are connected with an organic affection of the liver. But here, two cases may present themselves; sometimes the intermittent fever precedes this affection, or at least the symptoms which indicate it ; sometimes it becomes developed during its progress.*

B. — DISTURBANCE OF THE CIRCULATION, OCCASIONED BY AN OBSTACLE TO THE FREE PASSAGE OF THE BLOOD WITHIN THE LIVER.

25. In our work on Pathological Anatomy we have detailed the results of

* Our author cites here two cases, in one of which hepatic disease was observed to come on during the course of an intermittent fever ; in the second, the intermittent supervened during the progress of an old disease of the liver, the progress of which it seemed to accelerate in a very remarkable manner. M. Portal, our author remarks, was one of those who laid particular stress on intermittent fevers which are occasioned by an affection of the liver, or which at least coincide with it. It has been well observed, that such fevers never yield to quinquina, the effect of which is to render them more intractable, by contributing to aggravate the disease of the liver.—Trans.

modern experience and observation, with respect to partial or general dropsies produced by an obstacle to the passage of the blood. There is also a certain number of diseases of the liver which are accompanied by ascites, and in which the latter affection seems owing to the difficulty which the venous blood experiences in passing through the hepatic parenchyma. These diseases are not those, as might be supposed *à priori*, in which accidental productions, cancerous or tuberculous masses, hydatids, or large abscesses, occupy the place of the tissue of the liver. In these different cases, dropsy is not uniformly observed, and it scarcely comes on before the close of the disease. It is also rather uncommon, where there is merely hypertrophy of liver without increase in its consistence. It is more common in cases of red, white, grey, or green induration of the hepatic parenchyma. Again, it is principally observed in a manner almost uniform in those cases wherein the size of the liver is diminished, whether this diminution affects equally the two substances, or whether the white substance be hypertrophied at the same time the red is atrophied, or whether this latter substance, without having diminished in size, has become less vascular than usual.

Here is what observation teaches us, and what might have been readily anticipated, as a consequence of the researches which we have already detailed respecting the morbid anatomy of the liver. It is precisely in those cases, wherein one may best admit an obliteration, an atrophy, a cellular or fibrous transformation of some of the vessels which ramify through the liver, that we see ascites most frequently developed. Nothing is more easily accounted for than its production under such circumstances. Serum accumulates in the peritoneum when the vena portæ hepatica ceases to give a free passage to the abdominal venous blood; in the same manner as a limb becomes infiltrated when its principal vein is obstructed. This connexion between certain partial dropsies, and an obstacle in the venous circulation, has been so well proved by my learned friend, M. Bouillaud, and also by those persons, who, after him, have devoted themselves to researches of this kind, that the mere existence of ascites, which almost invariably accompanies certain diseases of the liver, might again be given as a proof that, in these diseases, there is an obstacle to the venous circulation in the liver.

That kind of affection of the liver, in which ascites most usually comes on, is one of those whose diagnosis is most obscure. In this case one cannot discover any tumour, as the size of the liver is diminished instead of being increased, very seldom there is any pain, and seldom are there observed any traces of jaundice. There is really nothing but the ascites which can then incline one to suspect that there is disease of the liver. Often in the Charité have we detected not only the existence of this disease, but we have been able to determine even its nature; for this purpose we must principally look to the way in which the dropsy commenced, to its progress, and to the local or general symptoms which preceded it. First we may distinguish it with tolerable certainty from a dropsy produced by an organic affection of the heart, by this circumstance, that in this last case the first traces of serous effusion very seldom manifest themselves in the abdomen, they appear first around the ankles, then in the legs and thighs, and lastly in the peritoneum. Where, on the contrary, the dropsy is connected with an affection of the liver, it is in the peritoneum that the serum begins to accumulate, and it is only secondarily that the lower extremities became œdematous. Anatomy and physiology readily account for these differences. Ascites again may be the result of peritonitis, but most frequently there has been a period of the disease when peritoneal pains were felt. Lastly, ascites might be essential, that is, without any cause that we can discover; but this is extremely rare, and the greater number of cases of ascites, considered as essential by ancient authors, appear to have been precisely, in the great majority of

circumstances, either the result of a peritonitis which has left no other trace behind it but a collection of serum, or the product of those diseases of the liver now under consideration, in which the organ has become atrophied, whether it be at the same time studded or not with those yellow or red granulations whose formation we have already explained.

There are some cases where the ascites results also from an obstacle to the free circulation of the blood in the vena portæ, but this obstacle no longer resides in the liver which is healthy; it exists along the course of the trunk of the vena portæ, or of its principal abdominal divisions, which are compressed by tumours of different kinds and different sizes. A fact of this kind was presented by the following case, which is also interesting in several other respects.

A young man, twenty-four years of age, who for several years back had an indolent engorgement of the lymphatic glands on both sides of the neck, presented several of the rational signs of an organic affection of the heart, when he entered the Charité. Face puffed, livid; lips and alæ nasi of a purple colour; œdema of the eyelids; ascites, but very slight infiltration of the lower extremities. The respiration was short and hurried; it was principally performed by the action of the ribs; he could not lie on his back under pain of suffocation, and he passed his nights and days half-sitting up in his bed, his head and trunk being supported by pillows. This difficulty of breathing had gradually increased, but it was chiefly since the last year that the dyspnœa became painful to the patient; it was constantly increased under the influence of moist and rainy weather. The chest, when percussed, sounded well in every part; auscultation detected nothing unusual in the region of the heart, nor in any other part, so as to incline us to suspect the existence of a disease of this organ or of the large vessels. A mucous râle was heard in different parts of the chest; in other parts there was a dry, sibilous râle; in other parts again the respiratory murmur was clear but loud. For several months back the patient had been labouring under a cold; he had never spit blood, and when we saw him, he had merely a slight mucous expectoration. The appetite was rather good, and he had habitually a little diarrhœa, without any abdominal pain. The pulse was natural with respect to its frequency, strength, and rhythm.

There was nothing to show that this individual had an organic lesion of the heart, and yet this lesion seemed to be indicated by several of the symptoms, such as the appearance of the countenance, the dropsy, and orthopnœa. This dropsy presented, however, one circumstance which is not usually met in diseases of the heart; the inferior extremities were infiltrated only consecutively to the ascites, and again this infiltration was very slight. We know, on the contrary, that dropsy depending on disease of the heart, begins in the great majority of cases by œdema round the ankles.

Auscultation did not discover the cause of the dyspnœa either in the heart or in the lungs. The following was the treatment employed; bleeding, local and general; blisters to the chest and lower extremities; diuretic mixtures; frictions with tincture of digitalis and squill wine.

For the six weeks following, the state of the patient underwent no perceptible change; there was constant orthopnœa; the respiration became short the moment the patient tried to leave his bed for a little. We never observed any fever, properly speaking. Nothing as yet announced the approaching dissolution of the patient, when, without any appreciable change in his state, he was seized on a sudden with extreme dyspnœa; the tracheal râle soon supervened, the respiration became embarrassed as in apoplectic patients, and in a few hours he died.

Post-mortem. Nothing remarkable observed in the thoracic viscera, except a small number of miliary tubercles scattered through the pulmonary parenchyma, which was generally engorged but healthy and full of air. Some old cellular

adhesions united the pleuræ costalis and pulmonalis on both sides. The anterior mediastinum was occupied by a large mass of tuberculated lymphatic ganglions. Through this mass the two diaphragmatic nerves passed; it was impossible to trace them through the numerous ganglions which surrounded and pressed them on all sides. They reappeared at a little distance from the diaphragm, and from the point where they became disengaged from the ganglionic mass to their distribution in the diaphragm, these nerves were remarkable for their greyish colour, resembling that which the optic nerve often presents when it goes to an eye which has been for a long time in a state of atrophy. In the abdomen the stomach was found healthy; numerous tubercles scattered over the mucous membrane of the small intestine; some ulcerations, small and superficial, to the extent of some inches above the ileo-cæcal valve; a tubercle about the size of a filbert in the cortical substance of one of the kidneys; cellular adhesion between the diaphragm and liver, the tissue of which was healthy; the spleen was soft and of considerable size; a considerable effusion of serum into the peritoneum; and lastly, before the vertebral column an enormous mass of lymphatic ganglions which had degenerated into tubercles, which forcibly compressed the vena cava on the one hand, and the vena portæ on the other, of which they surrounded the principal abdominal branches as well as the trunk. On each side of the neck, from the edge of the jaw to the clavicles, there was a large string of tuberculated lymphatic glands, like those of the thorax and abdomen. Several were placed between the vessels and the nerves of the neck, and the carotid artery and jugular vein were found separated by these glands. With respect to the pneumogastric nerve, some inches below the origin of the superior laryngeal nerve, it became lost in the mass of ganglions, in the midst of which it was impossible to find it. It reappeared a little above the clavicle, and was remarkable on both sides for its flattened appearance. Each axilla was occupied by a tumour as large as an orange, which was formed of a number of tuberculated lymphatic glands. The thoracic duct contained a small quantity of reddish serum.

26. Independently of the cause of dropsy, which appeared to be the compression of the large venous trunks, this case appeared to possess still further interest, in consequence of the state in which several of the nerves were found, which contribute to the function of respiration, the diaphragmatic nerves on the one hand, and the two cords of the eighth pair on the other. M. Berard has mentioned the case of an individual in whom no other lesion was found to account for the very great dyspnœa which he presented during life except a tumour developed in the substance of one of the diaphragmatic nerves. Here not only had the two diaphragmatic nerves undergone considerable alteration, which was sufficiently characterised by the grey colour and real atrophy of their lower extremity, but moreover the two pneumogastric nerves were seriously involved, as was manifestly proved by the flattened form they presented on escaping from the lymphatic tumour, in the midst of which it was impossible to trace them. Now, if the experiments of physiologists have proved that after the division of the eighth pair hematosis ceases to be duly performed, the lungs become engorged, and death supervenes at the end of a few days, may not the fact I have just cited be classed among this order of facts? There was here also a gradual diminution, and ultimately a cessation of the influence exercised by the eighth pair on the change of venous into arterial blood, thence the constantly increasing dyspnœa, etc. If this cause of dyspnœa will not be admitted, it will then be necessary to allow that the very great embarrassment of the respiration presented by this patient existed without our being able to detect in the dead body any lesion which could account for it; for I do not think that the tubercles, which were very small and very few in number, as found in the lungs, could in any way explain this dyspnœa, which for its intensity may be compared to that which occurs in the progress of the most serious organic diseases of the heart.

SECTION III.

DISTURBANCES OF THE SECRETIONS AND OF NUTRITION.

27. The secretion of urine is that most frequently altered in diseases of the liver. The most remarkable of these alterations consists in the mixture of several elements of the bile with the ordinary principles of the urine. Physiology teaches us that among the different ways in which different foreign substances may be eliminated from the body, none is more active or more open than the renal apparatus. In icteric patients also the urine contains bile before the skin is coloured yellow; it happens even in more than one case of liver disease, that the skin does not lose its natural colour, whilst the tint acquired by the urine attests the presence of bile in the liquid. What is there astonishing in seeing the materials of the bile, which the liver no longer separates from the blood, make their exit from the system with the urea, when we constantly see a great number of substances not assimilable expelled with the same principle — substances what have been either formed in the system, or have been introduced from without?

The materials of the bile, when they are not sufficiently separated from the blood by their ordinary eliminating organ, may again escape from the system by other passages than the kidneys. Oftentimes, for instance, the matter of the cutaneous transpiration is impregnated with them, and if the patients sweat, their linen assumes a yellow tinge.

The mucus has appeared to us to contain bile, or at least its elements, much less frequently than the urine and sweat. The lingual mucus, for instance, is not more frequently yellow in cases of jaundice than in any other affection. Once, however, in a jaundiced individual, we found an extraordinary colouring of this mucus, and of that supplied by the membrane of the air passages; the upper surface of the tongue was covered by a thick coat of a fine green tint; the mucus expectorated presented the same colour. The conjunctivæ and skin were yellow as usual; the urine also presented the orange red tint usual to it in cases of jaundice. What was the cause of this extraordinary difference between the colour of the matter accidentally mixed with the products of the secretion of the mucous membranes, and the colour of that which impregnated the reticular tissue of the skin, and which tinged the urine?

To any person who has studied these facts, it becomes very probable that in a certain number of diseases whose cause seems to reside in a morbid matter which exists in the blood, whether it may have been introduced from without, or may have been formed in it, the secreting organ perform the important part of separating from the blood the principles which alter it. It is not in this way, for instance, that we may account for the remarkable fetor of the cutaneous secretions, intestinal and urinary, in animals who have received putrid matter into their veins? What is that characteristic acid odour in the sweat of lying-in women during the milk fever? It is very evident that this can depend only on a new principle which is mixed up with the cutaneous exhalation, and which is indicated here by its odour, as it is indicated in icteric patients by its colour. Is not this principle one of those which must enter into the composition of the milk? A supplementary secretion separates it from the mass of the blood where it is formed, until the mammæ are sufficiently prepared to eliminate it. What is the result? this, that if the mammary gland does not discharge its function properly, the materials of the milky secretion will remain in the blood from which they must be eliminated, as we have seen the materials of the bile were, and as the principles of the urine are under other circumstances, by other exits

than the kidneys. If we admit these facts, we have only to allow the consequences, by also admitting either the mixture of the principles of the milk with the different secreted liquids, or even their stagnation and deposition in certain organs, on the surface of serous membranes or elsewhere; and in order to favour their elimination, may not a process of irritation more or less dangerous be set up there? and if such be the cause of the latter, shall bloodletting, under such circumstances, be an efficacious mode of treatment? would it not be more rational, and more physiological, to stimulate some secretion, as, for instance, that of the liver, or of the intestinal mucous membrane? Is it in this way that the purgative treatment employed by Doublet and other physicians acted in the cases of what are called puerperal fevers? There was something then not altogether unreasonable in the old belief in *milky metastases.*

We beg the reader to observe that we do not give any of those ideas as proved, we only require that they should be reflected on, because more than one fact, both physiological and pathological, really tends to demonstrate its accuracy, and because an opinion abandoned is not necessarily for that reason a false opinion.

28. Nutrition, properly so-called, is seriously altered in most cases of chronic diseases of the liver. However, we seldom observe that extreme marasmus which accompanies pulmonary phthisis. There is even an accidental production whose development in the liver very rarely produces any wasting, unless it has attacked a very considerable portion of the hepatic parenchyma, namely hydatids. An abscess of small extent, a cancerous mass of inconsiderable size, oftentimes even a mere change in the size or consistence of the liver, occasion greater disturbance in the process of nutrition than those entozoaires do.

Diseases of the liver, whether acute or chronic, may also modify the functions of animal life, as well as those of nutritive life; but here nothing can be laid down in a general way; for there are as many modifications of the innervation as there are individuals. There are some patients in whom the nervous system remains in its normal state, whatever be the disorganisation which the liver has undergone. In others the least irritation of this organ reacts on the encephalon; it gives rise to these different groups of symptoms, which constitute ataxic fever. In their chronic state it may happen that affections of the liver, at the same time that they are indicated only by very slightly marked local symptoms, may produce by their sympathetic action on the nervous centres, a crowd of morbid phenomena, which may very properly be classed under the neuroses, their seat being in the nervous system, the real origin of which, however, is the affection of the liver.

CHAPTER III.

CASES.

29. Whatever exactness we may have endeavoured to attain in the general description which we have now given of diseases of the liver, we are fully sensible how far what we have said is from representing those infinite shades which these diseases may present in their anatomical characters, in their symptoms, their progress, complications, etc. This end cannot be attained without studying a certain number of cases, a study which is oftentimes painful, but always useful.

ARTICLE I.

CASES OF SANGUINEOUS CONGESTIONS OF THE LIVER.

Case 1.—Organic affection of the heart—Tumour in the right hypochondrium, the appearance of which coincided with every increase of the dyspnœa—Liver very large and gorged with blood.

A man, 46 years of age, stated that he had been asthmatic from his youth. Only about one year before we saw him he perceived some œdema around the ankles; this œdema involved by degrees the entire of the lower extremities, proceeding from below upwards; subsequently the scrotum, and ultimately the abdomen, became tumefied. After lasting for three months this dropsy disappeared; but it reappeared two months before the patient's admission into the Charité; the dropsy was then almost general over the subcutaneous cellular tissue; the ascites was not very great; the respiration was very much impeded, the only position in which the patient could remain was that of sitting. The pulsations of the heart were but slightly heard, and with great irregularity in their rhythm, in the præcordial region, along the entire extent of the sternum, and in the epigastrium; the pulse was scarcely felt; several pulsations of the heart were frequently heard in regular succession without its being possible to perceive the arterial pulsations. The right hypochondrium was tense, without being painful. We discovered there a rounded body, which, appearing to commence from behind the ribs, terminated in a blunt sort of border a little above the umbilical region. M. Lerminier directed sixteen ounces of blood to be taken from the arm, and twenty leeches to be applied to the anus. According as the blood flowed from the vein, the patient seemed to revive; his breathing became freer, and the pulse improved. On the next morning this person, who the day before appeared to be dying, was no longer the same. The livid colour of the face was gone; the pulse had again become regular and sufficiently strong; the pulsations of the heart were heard to be more distinct. An evident change had taken place at the same time in the right hypochondrium, it was again soft and no tumour was felt. This improved state continued without variation for the three following weeks; no change in the dropsy. But after this time, and without any known cause, the difficulty of breathing again became very great; pulse very weak and irregular; countenance assumed a livid tint, and at the same time the liver once more descended into the hypochondrium, where it became as perceptible as before. Bloodletting was again employed, but not with the same success as on the former occasion; the state of asphyxia became more and more marked, and the patient died.

Post-mortem.— Purple tint of the countenance was retained even after death; arms and legs livid. Black blood, like currant-jelly, distended the four cavities of the heart. The enlarged cavity of the right ventricle when emptied of its blood did not collapse; its parietes were hypertrophied. The cavity of the left ventricle was also very large, and the thickness of its parietes very great. The different orifices of the heart were free. Some small white spots were found on the internal surface of the aorta. The lungs were infarcted, but healthy.

In the abdomen, the liver was very large; it passed several fingers breadth beyond the cartilaginous edges of the ribs; by incision and slight pressure an enormous quantity of blood was made to flow from it. Its tissue, which was of the ordinary consistence, presented an almost uniform red tint, deeper however where the substance naturally exists which we have called spongy or cavernous, and which appears to be peculiarly vascular. The gall-bladder con-

tained a small quantity of yellow bile. All the tissues were in general gorged with blood.

This case furnishes a striking example of one of those sanguineous congestions entirely mechanical, of which the liver may become the seat in persons labouring under an organic affection of the heart. In the most vascular part of the liver all the blood goes on accumulating, which, being conveyed to this organ by the vena portæ, cannot pass into the heart, and from this latter organ also there may be a reflux of a certain quantity. Then the liver becomes tumefied, just, for instance, as we see the corpora cavernosa penis become swollen in individuals who have been strangled. What is very remarkable is the extreme rapidity with which, on the one hand, the liver may acquire a prodigious size, and with which, on the other hand, it resumes its normal size, as soon as the obstruction to the venous circulation has been diminished. This real diminution of the liver was here very evident after the first bleeding.

Case 2.—Active sanguineous congestion of the liver, without alteration of its texture (first degree of acute hepatitis).—Jaundice accompanied with fever—Tumour in the right hypochondrium—Sympathetic irritation of the brain.

A middle-aged man, of a strong constitution, skin brown, hair black, was labouring under jaundice with fever when he entered the Charité. Eight days before, his health, which till then was good, became deranged. He first felt a sort of weight towards the right hypochondrium. The physician who was then consulted, detected a tumour in this hypochondrium, and fever soon supervened. The patient was bled. When we saw him he had a well marked jaundice, which commenced only since the last three days; pulse frequent, skin hot. he complained of no pain; but on examining the abdomen the liver was found to be enlarged in the right hypochondrium. The tumour which it formed extended from the cartilaginous edge of the ribs, behind which it seemed to extend, to a little distance above the umbilicus: the edge of this organ was very easily circumscribed; the tumour did not go beyond the linea alba: it occasioned no pain even on pressure. The tongue was whitish, without any red points; no bitter taste in the mouth; the appetite was lost, thirst considerable, epigastrium free from pain, stools natural. Urine rather scanty, and of a remarkable orange-yellow colour. This person was considered to labour under acute hepatitis. (Twenty-five leeches to the anus; emollient ptisans.)

During the five days following the state of the patient remained nearly the same. Fever was high, and there was some delirium every night. On the morning of the 7th day, dating from the time of his admission, the delirium of the night still continued; he fixed his eyes on those who stood around him, without answering their questions; he then spoke to himself, and in a very incoherent manner. Face was red, eyes injected; pulse from 115 to 120; skin burning hot and dry; icteric tint more marked than ever. (Twenty leeches along each jugular vein; sinapisms to the legs; lavement with an ounce of sulphate of soda.)

In the course of the day, there was alternately profound coma and violent agitation, during which he sent forth a piercing cry occasionally, which seemed to indicate acute suffering, whether real or imaginary. In the evening the pupil on duty obtained, with difficulty, three pallettes of blood from him. The blood, when taken, collected into a small dense coagulum, which was covered with a buffy coat of considerable thickness. Still, on the two following days, the cerebral symptoms continued with the same intensity and in the same form; they then suddenly changed character; the state of coma became continued; the patient fell into a state of stupor from which nothing could arouse him. The extremities, when raised, fell again by their own weight; still the skin cover-

ing them retained its sensibility, and the power of muscular contraction was not destroyed. The tumour in the right hypochondrium still continued; same state of pulse; and the jaundice still continued. The lungs, however, soon became engorged, the respiration was accompanied with a râle, and the patient died in a sort of apoplectic state, on the 12th day after his admission, and the 20th day after the appearance of the first morbid symptoms. During the last three days blisters were applied to the lower extremities, and one also to the nucha.

Post-mortem. The cerebral membranes were considerably injected, and from the substance of the brain, when sliced, drops of blood were seen to escape through several small points, the orifices of so many vessels. The encephalon and its membranes were then the seat of considerable sanguineous congestion; yet we have several times observed a similar congestion in persons whose nervous system presented no functional disturbance. Very little serum was effused into the ventricles and at the base of the cranium. The different parts of the encephalon were examined with the greatest care; nothing, however, was discovered there, nor in the spinal cord. Nothing remarkable in the thoracic organs, except considerable serous engorgement of the lungs.

The first object which struck us, on opening the abdomen, was the size of the liver. It passed beyond the edge of the ribs by several fingers' breadth. When seen externally, it was of a bright red colour. Each incision made in it caused a considerable quantity of blood to escape from it. Nothing else remarkable was observed in the abdominal viscera, except some injected veins which traversed in great numbers the submucous cellular tissue of the stomach, and different parts of the small intestine. There were also large veins gorged with the blood in the mesentery. The cartilages of the ribs, the fibrous membranes of the encephalon, heart, and spleen, the liquid contained in the thoracic duct, presented a well marked yellow tint. This tint was observed, though in a less degree, on the external surface of the intestines.

The disease, whose history has been now detailed, presents two distinct periods for consideration. The first is marked by the local and general symptoms of an acute affection of the liver; in the second, very serious nervous symptoms appear. In the first period there was tumefaction of the liver, fever, and jaundice; there was no pain, nor was any symptom observed which could induce us to suspect that the affection of the liver was consecutive on any lesion of the digestive tube; and, after death, this tube was found perfectly healthy. Neither was there anything found in the biliary ducts, which could account for the jaundice. Could this have been produced by the great sanguineous congestion of which the liver was the seat? During life we had the certainty that the excretory ducts of the bile were equally free, for the stools were constantly tinged with yellow. Here, then, is a case which demonstrates the possibility of the production of jaundice without previous production of obstruction in the ductus hepaticus or choledochus.

Before the nervous symptoms of the second period were very well marked, there was for several nights intermittent delirium, which seemed to depend on a sympathetic irritation, of which the brain became periodically the seat. Death was evidently the result of this irritation, which was now become continued. There was at first an exaltation, then a total abolition of the innervation; and it was when the nervous influence ceased to act, in its normal way, on the lungs, that engorgement of the latter organs preceded for a little time the extinction of life. Still, what do we find to account for all these serious symptoms, to explain to us that remarkable disturbance in the action of the nervous centres? A little more blood than ordinary in the vessels of the brain and its investing membranes; a little more blood than ordinary also investing the vessels of the liver, and nothing else! Very frequently such congestions are met,

and nothing similar in the symptoms. Still we can hardly refuse believing that in this particular case the latter depended on this congestion; the sanguineous congestion of the liver having commenced with jaundice and fever, being indicated during life by tumefaction of the hypochondrium, seemed to have produced both this jaundice and fever; the nightly delirium at first seemed also to depend on it; and if this opinion is considered as well-founded, the consequence must be admitted, namely, that a further degree of sympathetic irritation of the encephalon was sufficient to produce all those further nervous disturbances. But, behind this visible part of the phenomena, their proximate and immediate cause lies concealed, and we, in our ignorance, designate it by the name of idiosyncrasy, or of individual disposition. It is this unequal force of vital resistance by which those infinitely varying effects can be explained, produced by one and the same lesion. The slightest lesion may react on all points of the system and produce death; the most serious, with respect to organic disturbances, may not produce any important disturbance of the functions. The opinion which we now give has recently received support from an excellent article of M. Louis, on unforeseen and sudden deaths. We should then commit serious and continual mistakes, if from the lesions found on a dead body we should attempt to divine the symptoms which took place during life. Such calculations would, in many instances, prove very erroneous.

A considerable number of cases warrant us in thinking that active sanguineous congestions of the liver, such as that last detailed, are not very rare, whether as primary diseases, or as consecutive on other affections, and particularly on an inflammation of the digestive tube. They are indicated sometimes by mere tumefaction of the liver, with or without fever; sometimes by these same symptoms, and further by jaundice, seldom by pain. We have seen many individuals in whom these several symptoms lasted but a very little time, and after their disappearance the health was perfectly re-established. In others there was an extraordinary disposition to the return of these hepatic congestions. We have had an opportunity of observing, among others, a young man in whom for the space of two years the hypochondrium became, five or six times at least, the seat of a tumour which, by reason of its form and situation, should be considered as appertaining to the tumefied liver. At the same time fever set in; twice only he had jaundice. This tumefaction of the right hypochondrium sometimes lasted for some days only, sometimes from fifteen days to three weeks. Each time advantage was derived from the application of leeches over the hypochondrium. These hepatic congestions finally disappeared, and there was no reason to suppose that they left any trace of organic affection in the liver. At other times the same congestions may really appear under a chronic form, remain continued for a very long time, without the liver, when examined after death, presenting any other alteration than an unusual accumulation of blood in its parenchyma.

Case 3.—Jaundice and painful tumefaction of the right hypochondrium, continuing for more than a year—No other alteration of the biliary apparatus except sanguineous engorgement of the liver—Chronic duodenitis—Acute entero-colitis.

A woman, thirty-five years of age, entered the Charité with jaundice. She gave the following account of the origin of her illness. Since the last three years she experienced from time to time a loss of appetite, bitter taste in the mouth, sense of weight in the epigastrium, and general lassitude. She took a vomit which removed these symptoms; but they soon returned, and were again treated in the same way, or by purgatives. About a year ago, having experienced the same symptoms, she took two grains of tartar emetic, which made her worse; her loss of appetite increased, an acute pain was felt towards the right of the epigastrium, and a few days after she found her skin of a yellow

colour. Her physician then applied fifteen leeches to the anus, and administered medicines, the nature of which she knew not. During the time which intervened between the appearance of the jaundice and her admission into the Charité, she wasted away more and more; the yellowness of the skin continued; the pain on the right of the epigastrium was but temporary, but it was succeeded by a sensation of weight in the right hypochondrium, which the patient said she felt to be more tense and swollen than the left. From time to time, the mere sensation of weight which she referred to became changed into a pain more or less acute. The patient had neither nausea nor vomiting, but an habitual dislike for food; still whatever nutriment she took, whether solid or liquid, produced no pain. Her stools were not at any time devoid of colour. They were in general scanty, and variable in their consistence. When we saw this woman we were struck at her extreme state of emaciation. The jaundice was very marked; the conjunctivæ were of a bright yellow. We discovered a degree of tension in the right hypochondrium, which did not at all exist in the left; pressure was painful on this part, and we were unable accurately to circumscribe any tumour here. The remainder of the abdomen was soft and free from pain. There was complete anorexia, no thirst, tongue pale, without any coating; alvine evacuations of a yellow colour. The pulse became a little frequent towards evening, and then the temperature of the skin was a little raised. The urine was scanty, and of a beautiful orange-yellow colour.

The very long time the jaundice had continued, the progressive wasting of the patient, the painful swelling of the right hypochondrium, seemed to indicate a serious affection of the liver, probably a cancerous degeneration of this organ. The nature of the stools satisfied us that there was no obstruction of the bile ducts. The preceding circumstances seemed to indicate also an accompanying affection of the stomach, or rather of the upper portion of the small intestine. The region of the liver was directed to be rubbed with a mixture of calomel and axunge. After a month, profuse diarrhœa set in, which, during the first four days of its existence, resisted all treatment; but on the fifth day the abdomen became tympanitic, the pulse was now habitually frequent, the temperature of the skin was raised. On the seventh and eighth days there was constant fever, alvine evacuations very frequent and involuntary, great prostration of strength, features very much altered, speech now embarrassed, tongue dry, brown at its centre, no redness at its edges. Died on the ninth day.

Post-mortem. The dura mater and external surface of the brain of a very marked yellow colour. A very small quantity of serum effused into the pericardium presented the same yellow colour. The heart contained some fibrinous coagula divested of colouring matter. The serum contained in the thoracic duct was also yellow. The same colour presented itself on the external surface of the different parts contained in the abdomen. The internal surface of the stomach was pale. Mucous membrane healthy; large veins full of blood were seen to pass beneath it. All the inner surface of the duodenum, from the pyloric valve inclusively to as far as the commencement of the jejunum, presented a well-marked brownish red tint. The follicles of the duodenum, usually very large, were here much more so than usual. The mucous membrane of this part was very much thickened, and friable. Nothing morbid in the biliary ducts. The liver was remarkable for its size: it descended considerably below the cartilaginous edge of the ribs, and its left lobe touched the spleen. The upper four-fifths of the small intestine were healthy; but at the lower fifth the mucous membrane was very much injected. This injection was also perceptible on the two surfaces of the ileo-cæcal valve and the interior of the cæcum. It diminished in the ascending colon, and then reappeared in the sigmoid flexure and in the rectum.

Here again is a case where to account for serious symptoms of considerable

duration, we find lesions apparently very slight, which a superficial examination might have passed over. To account for a jaundice of one year's duration, for a disturbed digestion of a still longer standing, for a progressive wasting, for a febrile accession which was lighted up every evening, and lastly, for an adynamic fever of which the patient died, nothing was found but a liver a little larger than usual, and a brown or red colouring of a small portion of the digestive tube. Let us see, however, whether we shall not be able to establish a correspondence between these lesions and the symptoms observed during life. Is it not to the existence of a chronic inflammation of the duodenum that the signs of gastric disturbances were attributable, which the patient complained of occasionally, before becoming jaundiced? Is it not this chronic duodenitis which, having been exasperated by the last emetic which the patient took, extended to the liver, and thus produced the jaundice. The sanguineous congestion of the liver became chronic, as the duodenitis which had occasioned it. Under the influence of this twofold lesion, the patient continued to waste away; she would not have presented more serious symptoms, if, for instance, she had been attacked with cancerous degeneration of both the stomach and liver. Therefore, we still repeat it, the severity and nature of the symptoms often depend much less on the severity and nature of the lesions than on the various dispositions of the individuals in whom these latter supervene, on the degree of sensibility of the patients, on the sympathies more or less numerous, more or less active, which come into play; besides we must not here confine ourselves merely to phenomena of this order; it must not be forgotten that it is in the duodenum that the chyme may be changed into nutritive matter. Now, if this intestine is in a state of chronic inflammation, can chylifaction continue to go on? This is scarcely probable; and there is again a powerful cause of wasting. The bad state of nutrition in this patient appeared such as would gradually bring her to the grave, when a new acute inflammation of another portion of the intestine supervened. The diarrhœa which indicated it at first, was soon followed by more serious symptoms, and the patient died in the midst of what is called adynamic fever, which, evidently in this case, was symptomatic of the entero-colitis. Besides, we think that any other acute inflammation supervening under such circumstances in an individual whose nutrition and innervation had been for a long time altered by chronic disease, any acute inflammation, we say, would have occasioned those same symptoms of adynamic fever.

It is now a well-ascertained fact, that the diseases called bad fevers depend less on the intensity of the local inflammation, than on the dispositions in which this inflammation finds the individuals whom it attacks.

In this case, again, the jaundice was independent of all obstruction of the bile ducts, and it would indeed be a very difficult matter to account satisfactorily for its production. How could the twofold chronic inflammation of the duodenum and liver have continued for so long a time without producing any disorganisation in these parts; whilst in other individuals sanguineous congestion, very inconsiderable in intensity and duration, is rapidly followed by the most serious changes of nutrition or secretion? Be this as it may, we may easily conceive that where there is as yet no disorganisation, a cure is possible, however improbable it may appear by reason of the long duration of the disease. The subject of the following case, who presented symptoms very closely resembling those of the patient just mentioned, recovered perfectly.

Case 4.—Jaundice with tumour in the right hypochondrium—Hectic fever, wasting away for fifteen months—Recovery.

A mechanic, about thirty-nine years of age, experienced for nearly a year before entering the Charité a dull pain in the lower part of the chest. At the same

time there was general indisposition, great prostration, and loss of appetite. An application of leeches to the epigastrium removed these symptoms, and the patient thought himself restored to health. However, on the following days, the appetite, which had returned for a time, disappeared again, and soon after the eyes, and then the skin, became yellow. The patient could give but a very imperfect account of his subsequent symptoms and of the treatment. The jaundice continued for the eleven months following; the appetite never returned, some diarrhœa occurred from time to time, and at intervals some pains were felt in the right hypochondrium. Great emaciation followed. Up to this period no regular treatment had been adopted. When we first saw this patient we formed a very unfavourable prognosis on him. He was now in a state of marasmus; a slight febrile disturbance took place every night, and during the day the pulse lost nothing of its frequency. The jaundice was very strongly marked over the entire cutaneous surface. On examining the abdomen we discovered an unusual swelling in the right hypochondrium and in the epigastrium. On pressing the abdominal parietes from below upwards, we felt a little above the umbilicus a well defined edge, which appeared evidently to belong to the liver. In every part where this tumour was felt, pressure was a little painful. There was no appetite; there never had been either vomiting or nausea. The alvine evacuations were scanty, and consisted of hard black substances. Our unfavourable prognosis was founded principally on the long standing of the jaundice, and on the disturbance of the gastric functions, and principally on the emaciated state of the patient. One would have believed, and not without some reason, that there was organic lesion of the stomach and liver, which had undergone considerable increase in size. M. Lerminier on the first day ordered twelve leeches to be applied to the right hypochondrium. On the following days emollient ptisans, and some broths, were all the nourishment he took; afterwards he took some pills, consisting of calomel and soap, with some vegetable juices, Vichy water, etc. After remaining about one month in the hospital, the first change observed was a modification in the alvine evacuations; they were become yellow, of less consistence and less scanty; we then observed the tumefaction of the epigastrium and of the right hypochondrium become less and less perceptible, the jaundice diminished, the evening febrile accession disappeared, and the appetite returned. Three months after his admission the patient recovered flesh; the jaundice was gone. He went out perfectly recovered.

The unexpected recovery of this individual induces us to think that there was not in him, as in the preceding patient, anything more than mere chronic sanguineous congestion of the liver, or, if you will have it, a chronic hepatitis in the first stage, without serious alteration of the texture of the organ. Such cases are sufficiently uncommon to entitle them to the attention of the practitioner. The disease seemed to have commenced with inflammation of the digestive passages, which, having been attacked in its acute stage by the application of leeches, continued in the chronic form, and extended to the biliary apparatus. When we saw the patient, the only sign of gastric affection about him was a total loss of appetite. Was this symptom sufficient to prove the existence of gastritis? Be that as it may, at first leeches were applied over the part, where examination with the hand detected an hepatic engorgement; and after some days of mere antiphlogistic treatment, some calomel pills were given, some vegetable juices, and Vichy water. If there had been gastro-intestinal inflammation, must not these means have exasperated it? and yet it was during the employment of such treatment that we saw all the bad symptoms disappear by degrees, and the health return contrary to our expectation. English physicians will carefully note in this fact the change of the alvine evacuations, which returned to a much more natural state a little time after the calomel was com-

menced; they would observe that it was in consequence of this change in the nature of the stools, that any amendment was seen to take place. According to some, such an amendment should be accounted for by a revulsion established in the digestive tube; according to others, by a specific action on the liver, produced by the medicines employed; according to others, by one irritation, which, even in the liver, succeeded to another. For our part we shall confine ourselves to the statement of the fact, and to saying that the recovery took place at the same time that medicines were administered, which should have retarded it, according to the principles of the doctrine of irritation. We shall remark, however, that the very strict regimen under which the patient was placed, and the very close observance of the rules of hygiene, might also act an important part in the cure.

It will not, in my opinion, be out of place to subjoin to this case a fact observed in the city in my father's practice, and which affords another instance of recovery from an affection of the liver, which had been for a long time considered as likely to terminate fatally. I myself had an opportunity of observing the cases in different periods of its existence; both in the epigastrium, as well as in the right hypochondrium, I felt and detected the existence of tumours, which have since completely disappeared.

Madame the Marchioness de J—— had had for several years almost constant pains in the epigastric region, pains which increased after meals. When she had attained the critical period of life, her digestion became still more painful; the appetite diminished more and more; the skin assumed a yellow tint, which was soon changed to a real jaundice; the patient became emaciated, and some fever set in, which at first existed only in the evening and at night, and then assumed a continued form. At the same time that these different symptoms appeared, an unusual resistance began to be felt in the epigastrium and right hypochondrium. In a short time the existence of a tumour in these regions was no longer a matter of doubt; its form and situation seemed to indicate that this tumour appertained to the liver; some inequalities were felt in it. Pressure generally gave pain; there was alternately constipation and purging. In about a year the patient was reduced almost to the last stage of marasmus; the lower extremities were usually a little infiltrated. Several physicians, MM. Portal and Lerminier among others, thought, with my father and me, that this lady laboured under organic disease of the liver, and the prognosis was of course very unfavourable. The patient was now unable to digest anything. Mercurial frictions were employed over the origin of the liver, without appearing to do either good or harm. One day, after having taken some vegetable juice, Madame de J. had some vomiting, and particularly very profuse diarrhœa. But what was remarkable, after this kind of indigestion, as she called it, she found herself evidently better. It is quite certain that, dating from this period (whether there was a real connexion or mere coincidence), the disease, which then seemed continually to become more alarming, began to assume a less unfavourable aspect. The fever ceased to be continued; the tumefaction of the hypochondrium and of the epigastrium diminished; the inequalities felt in that region were no longer perceptible; the jaundice became less marked. The patient was then put on asses' milk for nourishment; this she bore very well, and she eventually took a great quantity of it every day. By degrees her appetite returned, the digestive functions were restored, she began to be able to take solid food, her flesh returned, the jaundice disappeared completely with the tumour of the liver. This lady is at present in the enjoyment of good health; her appetite and digestion are excellent, and she is able to perform long journeys on foot.

It is very remarkable that, in the two cases of recovering from liver affection now detailed, the improvement commenced in consequence of a change produced by art: in the first case the stools became gradually more frequent, more

liquid, more yellow; in the second case a profuse diarrhœa set in all at once. If this were the proper place, we should feel no reluctance to cite some cases witnessed by ourselves, in which we have seen different morbid states improve and recover after the administration of the too celebrated purgative of *Le Roy*, which, in the hands of ignorant practitioners, has made so many victims. The more the present direction of medical opinion turns physicians from such a system of treatment, the more important is it to inquire into its effects, and to satisfy ourselves whether here, as in most human affairs, a small portion of good may not be found mixed up with much that is bad.

Case 5.—Chronic gastritis—Intermittent hepatitis; indolent tumour in the right hypochondrium, jaundice—Cure of the liver affection.

An individual, about sixty-three years of age, who had for several years back been labouring under painful digestion, habitual pain in the epigastrium, frequent vomiting of acrid matters, etc., met with a severe reverse in his circumstances about a month before entering the Charité. During the fifteen days following, the pain in the epigastrium was more acute, frequent nausea, total loss of appetite, and, at the end of these fifteen days, an appearance of jaundice. After the latter had been in existence about a fortnight, he entered the Charité. All the skin was then of a yellow colour, as also the conjunctivæ. On examining the abdomen with the hand, the edge of the liver was felt full two fingers' breadth below the cartilaginous edges of the ribs. Tongue natural, epigastrium moderately sensible, frequent eructations; the patient vomited from time to time a yellow and bitter liquid in considerable quantity, having all the physical characters of bile; there was not then any obliteration of the ductus choledochus, or of the hepatic duct. But, what is strange, at the same time that bile was vomited up in great abundance, the stools were entirely devoid of colour, like clay. They were also scanty. No fever at all. Twelve grains of calomel were prescribed, which procured no alvine evacuation. For the five days following he remained in the same state. Great itching in the skin. Urine of a deep orange-red colour (nitre whey, emollient lavements). Two ounces of castor oil were then prescribed to be taken in several cups of vegetable broth. From five to six stools were obtained. On the two following days lavements, with one ounce of sulphate of soda and half an ounce of senna leaves. (Whey, with a drachm of acetate of potash.) Three or four days after, recourse was again had to the castor oil. Under the influence of this treatment, the following series of phenomena supervened; the bilious vomiting ceased, according as alvine evacuations of a bilious character were obtained. The tumour in the right hypochondrium diminished, then disappeared. The urine assumed a more natural appearance, the yellowness of the skin diminished, the pulse remained uniformly free from frequency. Things being in this state, M. Lerminier prescribed some glasses of Vichy water, and pills consisting of calomel and soap (two grains of each). Frictions were used over the right hypochondrium, with an ointment consisting of an ounce of cerate and a drachm of calomel. After remaining three weeks in the Charité there was no longer any trace of jaundice; the right hypochondrium again became soft, the vomiting had ceased for a long time, and the digestive functions were soon perfectly re-established.

This case is remarkable with respect to the succession, the order of connexion of the morbid phenomena, and with respect to the treatment adopted.

The patient had, for a long time back, all the signs of chronic gastritis, when, in consequence of an intense mental excitement, this gastritis became worse, and at a later period the symptoms of an affection of the liver manifested themselves. It is possible that there was in this case inflammation of the biliary ducts; but the matter vomited always proved that these canals were not obliterated,

and that the bile entered the duodenum. But what was remarkable is, that whilst much bile was vomited, there was none in the alvine evacuations; so that one would have said that, according as it entered the duodenum, an anti-peristaltic motion of this intestine drove it towards the stomach. All we know about the liver affection is, that there was jaundice and considerable tumefaction of this organ. However, after a certain time, and according as the alvine evacuations began to be tinged with bile, all signs of the liver affection disappear; and when the patient left the hospital, the old symptoms of chronic gastritis were also very much mitigated.

If we now inquire under the influence of what treatment the cure of the disease of the liver, and the improvement of that of the stomach, appeared to be produced, we shall find that it all occurred during the employment of purgatives. But we shall not forget that, whilst in this particular case these purgatives had a happy influence on the twofold disease of the stomach and liver, probably by occasionally producing a revulsive fluxion on a lower part of the digestive tube; under other circumstances, on the contrary, the employment of these same purgatives has quite a contrary effect, it irritates the liver and produces jaundice. The question now would be to determine with precision the cases where one or other of these effects takes place. We have more than once seen obstinate bilious vomiting with constipation, which was accompanied with fever, resist the application of leeches over the epigastrium, and disappear at the same time that profuse alvine evacuations, the result of a purgative, were established. The fever also ceased, and the health was soon restored.

RECAPITULATION OF THE PRECEDING OBSERVATIONS.

The observations now presented to the reader appear interesting for more than one reason.

1st. With respect to etiology, they prove that diseases of the liver may be consecutive on gastro-intestinal inflammation, but that at other times they are primary. It is not necessary to cite numerous cases on this point; one well authenticated fact is sufficient.

2d. They present instances of different shades of acute or chronic hepatitis, of sanguineous congestions in the liver, which may be but temporary, or may continue for a very long time, without any serious alteration of nutrition taking place in this organ, or without any morbid secretions arising.

3d. Such affections of the liver may terminate in death, either in their acute state, by reacting sympathetically on the nervous centres, or in their chronic state by the progressive wasting which they occasion; but, in the great majority of these cases, this wasting depends as much on an accompanying affection of the digestive tube as on the disease of the liver.

4th. They may also terminate favourably by return to health, either in their acute, or in their chronic state, after having produced considerable emaciation of the patients, and after giving rise to most of the symptoms which ordinarily mark the most serious degenerations of the liver.

5th. In their acute state they may manifest their presence either solely by a febrile disturbance with sympathetic reaction, more or less marked on different organs, without there being either a tumour in the hypochondrium, or jaundice, or pain; or by these latter symptoms which may exist separate or combined.

In their chronic state these sanguineous congestions, or attacks of hepatitis, may simulate by their symptoms, as has been just said (Coroll. 4), the different changes of texture to be mentioned in the following paragraphs: —

6th. They may either be continued or present themselves only in an intermittent form.

7th. The jaundice, which often accompanies them, is not always accompanied with an obstruction of the bile ducts.

8th. We have seen two kinds of treatment succeed in these diseases ; *a*, the antiphlogistic treatment ; *b*, the treatment by purgatives.

9th. This latter species of treatment has given rise to results so remarkable, that physicians even endeavour to obtain them, by devoting themselves to the same researches as we have done.

10th. There are other cases where the treatment by purgatives has been evidently injurious.

11th. It still remains to determine more accurately than we have ourselves done, what are the cases where one or other of these modes of treatment may be employed with most advantage. Can the cases wherein the method by evacuation has proved efficacious be all explained by the principle of revulsion ? We doubt it.

ARTICLE II.

CASES RELATING TO THE ALTERATIONS OF NUTRITION OF THE PARENCHYMA OF THE LIVER.

In the preceding cases we have seen no other change in the liver except an unusual accumulation of blood within its substance. Observation has showed us that this active sanguineous congestion, this first degree of inflammation, may continue for an indefinite period in the liver, without this latter organ becoming more seriously altered. But at other times, whether consecutively on this same sanguineous congestion, or simultaneously with it, or without its being possible to demonstrate otherwise than by analogy that it ever existed, the nutrition of the liver deviates from its normal state ; whence there may result, 1st, different modifications in its form, size, colour, and consistence ; 2d, changes more or less appreciable in its circulation, and, in consequence, divers local or general symptoms, depending on the different species of changes which the organ has undergone.

SECTION I.

OBSERVATIONS ON HYPERTROPHY OF THE LIVER.

Case 6.—General hypertrophy of the liver—Chronic gastro-duodenitis—No jaundice.

A printing compositor, forty-three years of age, entered the Charité in the following state : great emaciation, face pale ; copper-coloured spots on the skin of the chest, back, and extremities. Sharp edge of the liver very distinctly felt a little below the umbilicus, and capable of being traced towards the left side, to the extent of two or three fingers' breadth beyond this point. In all the space included between two lines supposed drawn the one from the middle of the cartilaginous edge of the left false ribs to as far as a little below the umbilicus, and the other from this last point as far as the right flank, there is felt a hard body, with smooth surface, which terminates inferiorly at the sharp edge now mentioned, the limits of which on the left cannot be accurately defined, and which superiorly seems to be continued behind the ribs. We had no doubt but this body was the liver enlarged. The tumour which it formed was completely indolent. But when the patient ate, or drank wine, he experienced a painful sensation in the epigastrium, which sometimes was but momentary, and sometimes continued for several hours. The tongue retained its natural appearance ; or, if it deviated from it, it was only in becoming paler. There was

habitual anorexia, without any increase of thirst, without nausea or vomiting. The stools were scanty, consisting of hard and brown matter: urine small in quantity, red, and depositing a sediment. The pulse was habitually frequent, without the skin being hot. The patient stated, that six years before entering the hospital he took a great quantity of Van Swieten's liquor and of the decoction of sarsaparilla, and that these remedies not freeing him from large indolent buboes which appeared in the groin after chancres on the penis, he took, by the advice of an individual who judged of his case by the appearance of his urine, a certain quantity of sulphuric acid combined with cream of tartar. But after employing this remedy for several days, he was seized on a sudden with an acute tearing pain in the epigastrium, the appearance of which was accompanied with a temporary loss of consciousness, and convulsions resembling those of epilepsy. During the fifteen days following, he kept his bed; the epigastric pain assumed gradually its original severity; but from this period digestion remained painful, the appetite was lost, the patient's strength and flesh gradually diminished. The patient was not aware of the existence of the tumour formed by the liver, which is not to be wondered at, since it did not project through the abdominal parieties, and it was not painful.

This person lived for nearly six weeks in the Charité: during this time we saw him pine away, and grow weaker and weaker. He never had fever, properly speaking. During the last ten days of his life, he vomited four different times, and in large quantity every time, a black matter resembling coffee-grounds; from that time, his features went on changing more, the extremities became cold. Coma set in, and he died.

Post-mortem. The abdominal parietes being removed, the first object which struck us was the enormous size which the liver had attained. It covered a great portion of the intestines, extended inferiorly to a little above the crest of the ileum, and passed considerably beyond the linea alba. With respect to size, it bore somewhat the same relation to the other organs that it does in the fœtus. Its external surface presented the two natural substances of the liver in a very marked manner. The same was observed internally. There was nothing abnormal in the texture of the organ. It was neither harder nor softer than usual; on making an incision, only a small quantity of blood flowed from it. The gall-bladder did not contain more bile than usual; this bile was of a clear yellow colour.

The stomach, which was small and contracted, was concealed by the liver. Its parietes were hard to the touch. Its external surface was of a slate colour throughout its entire extent, and was as it were mammillated. The latter appearance depended on considerable hypertrophy of the mucous membrane. This hypertrophy was unequal in intensity in different points of the stomach; where it was very marked, its existence was indicated by a sort of elevations, and between them were depressions where the mucous membrane was rather attenuated. The submucous cellular tissue participated a little, particularly towards the pylorus, in the thickening of the membrane which covered it. The duodenum presented on its internal surface the same slate-coloured tint as we had already found in the stomach. The suprarenal capsules appeared very much enlarged. A great quantity of black colouring matter was deposited in the cellular tissue of the lungs, both the interlobular and intervesicular; there was a great quantity of it also in the bronchial glands.

This case presents to us an instance of disease of the liver which consists solely in a more active nutrition of this organ, similar to that of which the heart is sometimes the seat. There was an increase in the number of its molecules, without their density, texture, anatomical or chemical composition being at all modified. Can we say that the production of such a state was preceded by inflammation, or simply of a more copious and active afflux of blood than

that of which the liver is ordinarily the seat? Might it not be as well supposed that the same quantity of blood as usual coming to the liver, there was separated from it by a more active elaboration, a greater quantity of nutritive materials?

Of the different symptoms presented by the patient, none seemed to be connected with the affection of the liver. There was neither jaundice nor dropsy; there was in fact no reason for the occurrence of the latter disease, as the liver was not, properly speaking, engorged, nor were its vessels obstructed. The bad symptoms, the emaciation, and death appear principally to have been owing to the gastric duodenitis. The cause, under the influence of which this occurred, is evident. Having appeared at first in an acute form after the introduction of a certain quantity of sulphuric acid into the stomach, it continued in a chronic form for six years, at the end of which time, the constantly increasing abolition of the digestive functions produced wasting and death. It is possible that the hypertrophy of the liver was consecutive on the gastro-duodenal inflammation, and this circumstance might induce one to think that the hypertrophy was the result of an inflammatory process.

One might suppose, *à priori*, that in a case where the nutrition of the liver had taken on so extraordinary an increase, the secretion of bile should also become proportionally increased. However, this was not the case: during life but little bile had been discharged, and after death the gall-bladder contained but a small quantity of it; even that contained in it seemed to consist of more water and albumen than usual, as if at the same time that the nutrition of the liver became more active, its secreting power diminished. The following case will serve probably to confirm this conjecture: it will furnish an instance of jaundice without any other alteration of the liver than simple hypertrophy.

Case 7.—General hypertrophy of the liver, with jaundice—Diarrhœa for some time before death, without any appreciable alteration of the intestine—Attenuation of the parietes of the stomach.

A gardener, thirty-three years of age, presented a greenish yellow tinge over all the skin, when he entered the Charité. He told us that he had had jaundice for about the last three years; that it came on without his being able to assign any cause for it; that before the appearance of this jaundice, he had always enjoyed good health, and that during the first year he had not even felt ill; but that gradually during the two following years his strength had diminished, and a state of considerable emaciation had succeeded to his habitual embonpoint; he had lost appetite, and, without ever experiencing any real pain in the epigastrium, he felt a sense of weight and fulness in this region after eating; he had from time to time some diarrhœa. When this patient came under our observation, we detected in the abdomen a tumour precisely similar to that described in the sixth case. It had the same form and the same extent; like that it was not painful; the tongue was natural, the mouth was free from any bitter taste, stools scanty, of moderate consistence, and *white*. Pulse not frequent. We saw this patient continually waste away; towards the termination of life serous and profuse diarrhœa set in and accelerated death. The patient had been treated merely with demulcents.

Post-mortem. The liver, which was of an enormous size, touched inferiorly the crest of the right ileum; and on the left it extended as far as the flank. In other respects its texture did not appear in any way altered; and on making an incision, or by pressure, only a small quantity of blood was made to flow from it. The gall-bladder contained nothing but a serous liquid, very slightly tinged of a yellow colour. The bile ducts were empty, and their mucous membrane of a greyish colour, without appearing to be at all changed in texture.

The internal texture of the stomach was pale, even over all its splenic portion;

its parietes were so attenuated as to be transparent: in vain did we seek for some traces of the muscular tunic; the mucous membrane itself was no longer apparent: all that was seen there was a cellular web, smooth and polished externally, to form the peritoneum. We found no other appreciable alteration in the digestive tube.

This case resembles the preceding both with respect to the alteration of the liver, and the absence either of pain or dropsy. But in the subject of the sixth case there was no jaundice. Only the elements of the bile contained in the gall-bladder seemed to be less in quantity than usual. Here there was a well-marked jaundice, and there was nothing to prove that in this hypertrophied liver the bile was still secreted, or if it was, it was but in very small quantity. In fact the gall-bladder contained instead of bile nothing but a little serum with a slightly yellow tinge; the bile ducts were devoid of colour, as if no bile passed through them for a long time; and during life the alvine evacuations did not appear to contain any. It appeared, then, that according as the nutrition of the liver became unusually active, its power of secretion became more and more diminished, and it at length was entirely abolished. The materials of the bile no longer finding a passage through this natural emunctory, and being but imperfectly eliminated by the kidneys, partly remained in the blood, and the colouring matter of the bile impregnated many of the tissues, or was deposited in them; thence the production of jaundice.

But what was the cause of the progressive wasting of the patient? Must we admit that the unusual and long continued presence of the materials of the bile in the blood produced an injurious influence on the nutrition and vital properties of the different parts to which it was distributed? Was it the active process of nutrition going on in the liver, which, concentrating an inordinate degree of force in this organ, prevented the other parts from being able properly to repair their losses? No doubt one or other of these causes may contribute to the wasting of the patient; but what must not be forgotten as a cause of this wasting, is the state of the stomach. Atrophied as it was over a considerable portion of its extent, could it still duly perform the function of chymefaction? Thus, during life, there was loss of appetite, and epigastric weight after the taking of food. But was this atrophy, this attenuation of the gastric parietes, the result of a previous inflammation or irritation? There is nothing to prove it.

With respect to the diarrhœa which existed towards the termination of life, we found no appreciable alteration in the intestine to account for it. Those who will have it that wherever there is an increase in the habitual secretion, there has been previous increase in the afflux of blood, or a process of irritation, will also admit it in this case, though pathological anatomy detects no trace of it. It would then be necessary to commence to show that every time a liquid is separated from the blood in a greater quantity than usual, there has been vital exaltation, irritation, or inflammation in the part where this separation takes place. But this is in many cases a mere hypothesis, for which many others might equally well be substituted. Still further, there are facts which directly combat this hypothesis. Is there irritation in the cold pallid skin of an individual who is about to die, or who falls into a faint? Oftentimes, however, this icy-cold, bloodless skin, is covered with a profuse sweat.

SECTION II.

SOFTENING OF THE LIVER.

Case 8.—Red softening of the liver—Continued fever with pain in the right hypochondrium—Very slight icteric tint, urine yellow—Complication of acute peritonitis.

A man, thirty-nine years of age, was in the enjoyment of good health, when

on the 17th of October he felt an acute pain over all the inferior and lateral part of the right side of the chest under the false ribs. The preceding night he had not slept, and had felt some shivering. For the three following days this pain continued; there was fever. On the 20th of October we found the patient in the following state: the cheeks (*pommettes*) were of a bright red colour, the rest of the face pale; the conjunctivæ were of a natural colour; the patient felt in the lower and right side of the chest, from the seventh to about the eleventh rib, a continued intense pain, which was increased neither by pressure nor by percussion. It became more acute by lying on the left side. The right hypochondrium had retained its soft feel, and might be pressed without pain; the breathing was free; there was no cough; the respiratory murmur was heard in every part distinct and not too loud; the tongue was whitish, not much thirst, epigastrium not painful, nor the rest of the abdomen. There had been no stool since the commencement of the disease; the pulse was strong and frequent; the skin hot, and covered with a profuse sweat, which tinged the linen of a yellow colour; the urine, which was in the ordinary quantity, presented a yellow colour of well-marked bile.

What was the nature of this affection? was it a pleuritis? but there would have been some cough, and more especially the pain would have been increased by the inspiratory movements. One circumstance struck us, namely, the yellow colour of the urine, as well as the deposition of the same colour which the sweat left on the linen. Did not this indicate a disturbance in the biliary secretion? and might we not from this presume that the pain above described was connected with the liver, or at least with its fibro-serous envelope? thence the febrile disturbance, which was not accounted for by any apparent lesion of the digestive tube. M. Lerminier prescribed a bleeding of sixteen ounces, twenty leeches to the anus, linseed ptisan, and emollient lavements. During the three days following the different symptoms now described continued; the conjunctivæ also assumed a slight yellow tint, as well as the skin of the face and of the anterior part of the chest. Only one evacuation was obtained by each lavement. He coughed a little, and the expectoration was that of simple catarrh (emollient ptisans, strict diet).

The disease was now come to the eighth day, nor was there as yet any appearance of its resolution, neither did any thing of a decidedly alarming character as yet present itself, when all at once the pain of the lower part of the chest on the right side became very severe, and extended to the right hypochondrium. On the tenth day the latter was very sensible on the least pressure; twelve leeches were applied to it. In the course of the day the pain extended to the entire abdomen. It was everywhere increased by pressure. At the same time the skin which remained constantly moist, became dry; the pulse became small and wiry, and much more frequent; the features were strikingly altered (thirty leeches over the abdomen). From the eleventh to the thirteenth day the abdominal pains continued, the cause of which evidently lay in an inflammation of the peritoneum; tension of the abdomen; some vomiting; constipation; pulse thready; gradual coldness of the cutaneous surface. He died on the fourteenth day of the primary disease, and on the seventh of the peritonitis.

Post-mortem.—Effusion of a small quantity of purulent liquid into the peritoneum, principally in both flanks. The convolutions of the intestines were held together slightly by soft pseudo-membranes of recent formation. The entire liver was as it were enveloped by a thick purulent stratum, extended into the form of membrane. On drawing this organ slightly out of its place, we were astonished at tearing it. Its tissue was extremely friable. It was reduced into a reddish pulp by the least pressure. The tissue of the liver thus softened resembled the tissue of certain softened spleens. It was of a uniformly red colour,

and presented no other alteration of texture. Its size was not perceptibly increased.

We here find a more serious alteration than in the preceding cases. There is no longer merely an unusual accumulation of blood, or a more active nutrition of the organ; its consistence is modified, and through its entire extent slight pressure reduced it to a sort of reddish pulp. If we inquire when this remarkable softening of the liver commenced, we shall consider it as very probable that it was an acute affection, and one which was the result of a real hepatitis, the first symptoms of which appeared on the 17th of October. We see how slightly marked these symptoms were. The hypochondrium was free from pain, and not swollen; there was merely pain on a line with the last ribs on the right side. But of how many different affections might not this pain be the sign! we have seen in the course of the case how the state of the urine and of the sweats contributed to throw light on the real nature of the disease, and how, at a later period, the slight icteric tint of the skin and conjunctivæ came to confirm the diagnosis.

There is nothing to prove that in this case the point of departure of the hepatitis was a gastro-intestinal inflammation. But one might ask whether the pain depended on an inflammation of the parenchyma of the liver, or whether it was not rather the result of an inflammation developed in the portion of the peritoneum which surrounds the liver.

Case 9.—Softening of the liver with loss of colour of its tissue—Serum instead of bile in the gall-bladder; bilious yellow colour of the urine and sweat, without jaundice, whitish stools—Symptoms of chronic gastritis with healthy state of the stomach.

A shoemaker, about fifty-eight years of age, commenced to lose flesh, and strength, and to suffer from indigestion about two years before entering the Charité. He never had any pain in the epigastrium, nor in any part of the abdomen; never any nausea or vomiting; but there was loss of appetite, at first exisitng only at intervals, and then becoming constant, a feeling of indisposition, and of weight towards the lower part of the epigastrium to the right side, five or six hours after taking food. Only one month before entering the Charité the patient kept his bed; from the onset of his illness, and during its progress, leeches had been applied several times to the epigastrium, without any relief being experienced from them. This group of symptoms seemed to indicate a chronic affection of the stomach; the following are the additional symptoms which we observed:—nothing remarkable in the tongue except its extreme paleness; no bad taste in the mouth. The epigastrium was soft, free from pain as well as the rest of the abdomen; the patient for a long time back took nothing but milk for nourishment, and he found it agree with him very well. The stools were scanty, and of a very remarkable appearance; they were whitish, totally devoid of colour, as in jaundiced patients, still neither the skin nor conjunctivæ presented any trace of jaundice. But the urine which was voided in considerable quantity, was of a very remarkable orange colour, such as is observed in jaundice; in a word, the patient sweated often from the head, and the linen which came in contact with this sweat was coloured yellow. The pulse was ordinarily a little frequent, without the skin being hot. The emaciation was considerable. We considered this patient as labouring under chronic gastritis, and further, from the nature of the stools, the urine, and the sweat, we thought that the affection of the stomach was complicated with some lesion of the liver.

During the two months the patient remained in the Charité—at the end of which time he died without a struggle, in a state of great exhaustion—the symptoms which he presented on his admission did not change, and we merely

observed him to become emaciated and continually more feeble. The milk which he took at first willingly enough, soon became disagreeable to him; he had the most complete distaste for all sorts of food. He asked for wine so eagerly that it was given to him, nor did this liquid render the gastric symptoms worse. Such is not the usual case of persons labouring under chronic inflammation of the stomach—a disease, however, which did not exist here, as we shall see. The treatment consisted in the application of a blister to the epigastrium, and simple emollients internally.

Post-mortem. The inner surface of the stomach was in general white, except in some points where, in the submucus cellular tissue, veins of considerable size were seen to pass; but in the mucous membrane itself no vessel was injected. This membrane was every where of its natural thickness and consistence. Neither did we find any appreciable lesion in the duodenum, nor in the rest of the digestive tube. The liver was then examined; when viewed externally it presented a pale colour. When drawn gently out of its place it was torn; and on pressing it with the finger it was found to become reduced into a sort of greyish pap. In all its points it presented the colour of dead leaf, and whether by incision or by pressure we could scarcely force a few drops of blood from it. It did not grease the scalpel, and had an appearance altogether different from that of fat livers. In the gall-bladder nothing was found in the place of bile, but a colourless serous liquid, which on being tasted did not appear to be bitter. Nothing remarkable in the bile ducts, which were all empty of bile.

This case appears remarkable in more respects than one. It presents an instance of a long-standing disturbance of the digestive functions without any appreciable change in the structure of the stomach, duodenum, or the rest of the intestinal tube. In many other individuals, where there had been no other symptoms, we found, however, in the stomach the most serious organic changes. Was there then in this case mere alteration of the functions of the stomach, without lesion of its texture. We think that we must seek elsewhere the cause of the disturbance of the digestion, and consequently of the progressive emaciation, debility, etc. Was not this cause the want of any bile flowing into the duodenum? is it with impunity that the chyme, which comes into this intestine in order to be changed into a nutritive juice, is now no longer mixed with bile? can healthy or real chyle be then formed? certainly, in the present state of science, such questions may be at least raised. Thence the feeling of weight experienced by the patient five or six hours after having taken some food, that is, nearly about the time when the latter should pass the pylorus. Thence the loss of appetite which here was not connected either with a state of irritation or of debility of the stomach, but which depended on the general bad state of the nutritive functions; appetite was gone, because nutrition itself evinced a tendency to go; the chyle no longer forming, there was no longer any chymefaction, a striking instance among many others of the close connexions by which all the vital acts are united and correspond.

If we now inquire what was the cause which prevented the bile from entering the duodenum, we shall find that it ceased to enter it (as the appearance of the fæces sufficiently proved during life) not because an obstacle in the biliary passages prevented its free excretion, but because the liver really no longer formed any. Accordingly none was found in the vessels scattered through the interior of this organ, and in the gall-bladder nothing could resemble bile less than the liquid contained in it. Thus, then, there seemed to have been in this case an absence of the biliary secretion. The yellow matter of the bile was separated from the blood by other excretory passages, by the kidneys, and by the exhalants of the cutaneous surface. But was the blood duly depurated in this way, and was not this a new cause of an alteration in the functions of nutrition?

We shall consider it then as a fact demonstrated by experience, that in the

cases of softening of the liver, similar to that described in this instance, the secretion of the bile may be suspended, or at least very much diminished.

With respect to the cause and nature of this softening, was it a result of chronic inflammation? this may be maintained, but cannot be strictly demonstrated, and for our part we are ready to own that we entertain some doubts on the matter.

ON INDURATION OF THE LIVER.

Case 10.—Red induration of the liver—Ascites—No other symptoms indicating an affection of the liver.

A lapidary, thirty-three years of age, had always enjoyed tolerably good health, till the May of 1821. At this period, and without having previously caught cold, he had a profuse hemoptysis, which lasted for ten days; he continued to cough till the end of June. At this time the symptoms referable to the chest ceased, the cough and slight dyspnœa which accompanied it disappeared; but other symptoms appeared on the part of the abdomen. A pain, not severe but habitual, was felt towards the right hypochondrium; (the patient could not describe its situation more precisely;) the food was several times vomited; slight purging came on, and now ceased only at intervals; however, he did not keep his bed, and continued his usual business. During the three following months, these symptoms still went on, his flesh and strength progressively diminished. We could not ascertain whether the pain of the hypochondrium had preceded or followed the first appearance of the vomiting and diarrhœa. During the months of October and November, at the same time that the face and extremities became more and more emaciated, the abdomen swelled, and ascites soon became manifest. He entered the Charité towards the commencement of December, and presented the following state: —

Countenance pale, expressive of great suffering, great debility, considerable emaciation of the extremities. Abdomen very much distended by a liquid which, when percussion is employed, evinces evident fluctuation; there is no pain in any part; some purging (five or six liquid stools in twenty-four hours). Appearance of the tongue natural. Appetite still preserved; no fever; skin very dry; respiration free; auscultation and percussion indicate no morbid state of the thoracic organs.

What was the cause of the ascites in this case? No organic lesion, as far as we could ascertain, could explain it. All that we could learn was the existence of chronic inflammation of the lower part of the digestive tube.

On the day after the patient's admission, paracentesis was performed. A bucket of limpid serum was drawn from the abdomen. Desirous of arousing the action of the kidneys, in order to prevent the peritoneal collection from forming, M. Lerminier prescribed the usual diuretic preparations, also frictions on the inside of the thighs with tincture of digitalis. For the twelve days following no change of any moment occurred in the state of the patient. M. Lerminier then prescribed a mixture, consisting of an ounce of castor oil, half an ounce of syrup of buckthorn, and two drachms of mint. Very copious serous stools were obtained, accompanied with severe colicky pains. Twenty days after the paracentesis, the ascites was much greater than it was at the period when the operation was performed. The features were changed; the prostration was extreme; the tongue retained its moist state, and was not red. At the commencement of January it began to become brown in the centre, without being red at the edges; the pulse continually became weaker, and the patient died without a struggle. The extremities had never been infiltrated.

Post-mortem. — An enormous quantity of limpid serum escaped through

the abdominal parietes when cut into. No flocculi were observed to float in it, and there was no indication in the abdomen of any previous or present inflammation of the peritoneum. We were struck with the feeling of density which the liver presented externally to the mere touch; though its size was not at all increased, it was much heavier than usual. It had a uniform red colour; it could not be torn without considerable difficulty; and with respect to its colour, its smooth section, and the aggregate of its physical properties, one could not compare one of its slices to anything better than to a slice of lean ham. The stomach was pale throughout its internal surface; its mucous membrane was so soft and thin towards the great cul-de-sac, that in several points nothing was found but the submucous cellular tissue lined by a liquid and whitish pulp. The duodenum and rest of the small intestine presented no appreciable lesion, except here and there some partial injections of the mucous membrane. The cæcum presented over its entire surface a brownish tint, and considerable development of its follicles. The mucous membrane of the colon was white throughout; but in several points it was perceptibly softened. The brownish colour reappeared in the rectum. Nothing else was found worth noticing, except that the lateral ventricles were distended with a considerable quantity of serum. The heart and lungs were quite healthy.

We find in this case an alteration in the texture of the liver different from any observed in the preceding cases. Its parenchyma was considerably indurated, and its density increased; its colour was of a deeper red than that of the liver in its healthy state. To discover this affection we find no characteristic symptom; but here a new morbid phenomenon presents itself, which we have not seen hitherto; namely, ascites. As it was evidently independent of disease of the heart, and as there was nothing to indicate that there had been peritonitis in the case, one might suspect that it must depend on an affection of the liver; but of this there was no certainty. The increased consistence of this organ probably opposed the free circulation of the venous blood within it. There was here then obstruction of the liver, a very vague term, very properly banished from scientific language, but one which nevertheless expresses a real fact. There was no derangement, at least perceptible to us, of the biliary secretion.

The period when this disease of the liver commenced it is not easy to determine. Was its commencement announced by the pain felt in the right hypochondrium, when the symptoms of pulmonary irritation were succeeded by other symptoms of gastro-intestinal irritation?

The white softening of the gastric mucous membrane did not prevent the tongue from constantly retaining a natural state, except for the last few days before the patient's death, when it became brown. There had been some vomiting at the commencement of the disease. But at a later period the gastric symptoms were very little marked. To account for the chronic diarrhœa nothing was found, but a brown colouring of the cæcum and rectum, and a little white softening, similar to that of the stomach, in the mucous membrane of the colon.

One may see in this case, an instance of the effect produced by repeated purgatives and other irritants administered to a person who had ascites, and whose intestinal mucous membrane was already in a state of irritation. On this point I shall make but one remark; namely, that those stimulants applied to a mucous membrane already diseased never produced fever.

We may remark the very healthy state in which the lungs were found in a person, who for several months before had had hemoptysis followed by cough. This is another fact which proves the possibility of the production of hemoptysis without the existence of previous tubercles. What was also very remarkable here was the sudden disappearance of the thoracic symptoms at the same time that the abdominal viscera began to be affected.

Case 11.—Red induration of the liver, with development of granulations at its circumference and in its interior—Jaundice and ascites—Tumour produced by the left lobe of the liver—Supposed cause; mental emotion.

A cab-driver, forty-nine years of age, of a strong constitution, who had indulged in alcoholic liquors to a great excess, enjoyed good health up to the end of June, at which time he had a violent dispute with some of his comrades, after which he became yellow. He entered an hospital, and after remaining in it for thirty-six days, he left it with a very slight yellow tint still remaining. The jaundice soon reappeared. From the 20th to the 30th of August the abdomen began to swell. In September the ascites increased, and the lower extremities then became infiltrated, and towards the 20th of September the dropsy extended to the scrotum.

On the 5th of October he entered the Charité. At this time the entire cutaneous surface was of a greenish-yellow tinge; the abdomen was very much swollen, and there was evident fluctuation in it; no pain had ever been felt there. The lower extremities, scrotum, and penis were infiltrated; the respiration was impeded, arising from the compression of the diaphragm by the peritoneal liquid. The thoracic organs were found on examination quite healthy; pulse small, a little frequent; skin not hot; urine scanty and of a saffron colour; the tongue was moist and whitish; appetite none; very little thirst; only one stool in the twenty-four hours, which was of good consistence, and presenting the colour of ashes. Great debility. Everything here seemed to show that the dropsy depended on the disease of the liver. M. Lerminier endeavoured to combat this by establishing a double revulsion on the kidneys and intestinal mucous membrane, in order to which he prescribed the usual diuretic medicines. October 8th, the infiltration of the scrotum had diminished; but the peritoneal collection was still increased; it produced considerable embarrassment in the respiration. Paracentesis was performed, and a transparent lemon-coloured fluid escaped. The collapse of the abdominal parietes, immediately after the operation, allowed us to detect the existence of a tumour to the left of the xiphoid cartilage, which could not be exactly circumscribed, and which seemed to belong to the left lobe of the liver. The same treatment was continued, and, the 9th, the infiltration of the lower extremities was diminished considerably; on the 10th we observed a continual tendency to stupor; during the night a profuse diarrhœa set in. On the morning of the 11th there was great prostration; tongue brown at its centre, and pulse very frequent; the entire day coma was observable, and considerable diarrhœa. On the 12th the breathing was very much hurried; tongue dry, black at the centre; pulse thready. 13th, face pale and very much changed. Sinapisms to different parts of the extremities; decoction of seneka, with some drops of liquid ammonia; æther. He died shortly after the visit.

Post-mortem. — Some infiltration of the lower extremities; deep yellow colour of the entire skin. Trifling quantity of limpid and yellow serum in the cavity of the peritoneum. The right lobe of the liver did not go beyond the edge of the ribs. The left lobe, on the contrary, occupied below and to the left of the xiphoid cartilage, a space as broad as the breadth of two fingers; it did not extend into the left hypochondrium. The tissue of the liver was brownish; externally it was marked with a number of granulations, which were also found in the interior of the organ. The gall-bladder was filled with a very thick bile.

The internal surface of the stomach presented a slate-coloured tint over a great portion of its extent. In the cranium the dura mater was found to be of a yellow colour; a small quantity of yellow serum in the ventricles. In the chest, the cavity of the two pleuræ, and that of the pericardium, some spoonsful of yellow serum. Some liquid black blood in the cavities of the heart. The

thoracic duct contained some yellow fluid. The costal cartilages were also coloured yellow.

The liver here presented four species of alteration combined: 1st, change in its colour; 2dly, partial increase in its size (in the left lobe); 3dly, increase in its density and consistence; 4thly, development of granulations on its circumference and in its interior.

As symptoms of these changes, we find: 1st, a small tumour, which from its seat might be readily taken for a tumour connected with the stomach; 2dly, jaundice; 3dly, dropsy, which commenced at the peritoneum, and then extended to the extremities, a course different from that of dropsies which depend on a disease of the heart.

There was no pain felt at any period of this disease. The jaundice was the first symptom which appeared. The patient had not yet remarked any derangement in his health, when a strong mental excitement gave rise to jaundice. But whilst the majority of jaundices arising from a similar cause have in general nothing alarming in them, and disappear after some time, without leaving any bad traces after them; here, on the contrary, the jaundice was in a manner only the first signal of a change in the intimate texture of the liver. Was the first impression made on the duodenum, which transmitted its irritation to the liver? Was there first inflammation of the bile ducts, and an obstacle, by reason of the swelling of their mucous membrane, to the flowing of the bile into the duodenum. Did this intestine, as also the ductus hepaticus and ductus choledochus, remain in their healthy state? And does not the mental excitement act rather by directly influencing the nerves of the liver, which, being modified in their action, alter the biliary secretion and prevent it from being duly performed? Hence the materials of the bile tarry in the blood, and jaundice is produced. All these questions may be discussed; but what should not be forgotten is, that the *post-mortem* examination did not point out in the ductus hepaticus and choledochus any mechanical cause which could prevent the bile from coming into the duodenum; besides, the liver still secreted a certain quantity of it, for the ducts were tinged with it, and some was found in the gall-bladder; but it was remarkable for its deep black colour. Thus there is in this respect a great difference between this case and those previously cited, where, even in the bile ducts, nothing was found but a little mucus.

The state of the intestines is well worthy of remark. Their mucous membrane had been frequently irritated by different purgatives, and still it was found white; thus these medicines had occasioned only a temporary congestion. Compare this case with those where, after a purgative or emetic given once, intense inflammation of the digestive tube is produced with sympathetic reaction on other organs, the production of adynamic or ataxic symptoms, &c., and try after this to lay down fixed rules for the administration of medicines. It is not less important for the physician to know the degree of sensibility or irritability of the intestinal mucous membrane, then to know on the other hand that there are cases, where, though stimulants of a more less active nature be brought in contact with it, it is still actually impossible to produce in it a state of inflammation. We may refer to other cases also, where the employment of purgatives has not only not been injurious, but in which their employment has been actually attended with beneficial results. Why do we dwell on these facts? Precisely because the medical doctrines of the present day divert the attention of practitioners from them, and it is useful to know them even in a physiological point of view.

We perceive, moreover, that profuse diarrhœa took place here during the last few days preceding death, without there being any lesion of the intestinal mucous membrane, as far as we could ascertain, to account for it.

The alteration of the stomach consisted merely in a change of the colour of

the mucous membrane : there was not during life any other sign of gastric affection except loss of appetite ; but we have already seen that this may be conceived (Case 11) to be independent of a morbid state of the stomach, though it is perfectly true that it most frequently depends on it.

The operation of paracentesis was attended by a remarkable decrease in the infiltration of the lower extremities ; but this decrease of dropsy was not followed by any useful result ; it was, on the contrary, from this period that adynamic symptoms appeared, and the patient fell into a state of coma, in which he died.

SECTION II.

ALTERATION IN THE NUTRITION OF THE LIVER, WITH DIMINUTION OF ITS SIZE (ATROPHY).

Case 12.—Atrophy of the liver—Cellulo-fibrous appearance of its tissue—Chronic gastro-enteritis.

A steel-polisher, thirty-six years of age, entered the Charité January 27. After severe domestic trials, he quitted Versailles, where he lived, and came to reside in Paris in a narrow damp street. Till then he had enjoyed good health ; only that sixteen years before he had had an affection of the chest, and he was subject to hemorrhoids from his youth. A little time after coming to Paris he lost his appetite ; the introduction of food into the stomach was sometimes painful ; it was vomited occasionally, and at intervals purging supervened ; when it ceased obstinate constipation followed. This person, who till then was rather fat, became rapidly emaciated. Eighteen months after these symptoms connected with the digestive organs commenced, he perceived at the same time that his face and extremities became more and more emaciated ; his abdomen, on the contrary, increased in size, without however any pain being felt in the part.

When we saw this patient, there was considerable effusion in the abdomen, which occasioned manifest fluctuation. The lower extremities were infiltrated (the patient assured us that the œdema of the extremities did not appear till long after the abdomen began to swell). The abdomen when pressed in different parts did not appear painful ; the face was pale and thin ; the tongue was covered with a yellowish coat, without any redness ; acid eructations frequently took place ; the taking of any solid food or wine into the stomach was followed by an acute pain in the epigastrium ; appetite was gone ; the patient complained chiefly of having an insurmountable disrelish for bread ; he lived for a long time on milk and vegetables. Since the last month the diarrhœa had been constant ; from eight to ten stools, consisting of a liquid matter resembling yellowish water, occurred every day ; the pulse was a little frequent without the skin being hot ; the urine was scanty, of a brownish red colour, and loaded with sediment. There was no trace of jaundice, and the colour of the alvine evacuations proved that the bile flowed into the duodenum.

The existence of chronic gastro-enterite was manifest ; it performed, no doubt, a considerable part in the progressive emaciation of the patient. With respect to the cause of the dropsy, it escaped our investigation ; but it appeared to be connected with an affection of the liver.

During the two following months we saw this individual become more and more emaciated ; the dropsy remained stationary. Whenever we attempted to combat it by diuretics we were obliged to desist, in consequence of these medicines producing no other effect but that of increasing the gastro-intestinal irrita-

tion. Friction, with tincture of digitalis, proved ineffectual, as did friction with mercury over the abdomen. Ultimately the tongue became red and dry; the diarrhœa, which had never ceased, became more profuse; delirium set in, and the patient died.

Post-mortem. Face and upper extremities very much emaciated; infiltration of the lower extremities, scrotum, penis, and abdominal parietes; limpid serum, a little greenish, accumulated in great quantity in the peritoneum; the intestinal convolutions floating in the midst of this serum, and, as it were, washed by it. No trace of inflammation in the serous membrane.

The liver was remarkable for its extremely small size. The left lobe consisted merely of a thin tongue superadded to the right lobe. The latter is itself much less than usual. Externally it presents a greyish-green colour. It offers unusual resistance when cut into; in some parts it actually creaks under the scalpel. Scarcely any trace of the two substances of the liver, as they are ordinarily found, were to be seen, but merely a whitish tissue, very dense, of a cellulo-fibrous appearance, which seemed very slightly vascular. In the ductus hepaticus and ductus choledochus, as also in the gall-bladder, we found some yellow bile, not at all thick. The parietes of the gall-bladder were infiltrated.

The stomach presented in its two portions different alterations. Towards the great cul-de-sac (splenic portion) the mucous membrane was very much injected (dotted appearance), without being either perceptibly softened or thickened. In the pyloric portion the mucous membrane was of a brownish tint; it was wrinkled, uneven, considerably thickened, and difficult to tear; beneath it, near the pylorus, we found the cellular tissue more dense, and thicker than usual. The internal surface of the duodenum presented a brownish tint, similar to that of the stomach. In the lower fifth of the ileum, as also in the cæcum, and ascending colon, numerous ulcerations were found, the ancient date of which was proved by the thickening and brownish colour of the cellular tissue which constituted the bottom of them. Between them the mucous membrane was considerably injected. This injection existed without any ulceration in the transverse colon, and as far as the rectum. The heart was empty, flaccid, and devoid of colour. A considerable quantity of serum was found in the cerebral ventricles, and at the base of the brain.

Here again was a serious alteration of the liver, the formation of which was not announced by any characteristic symptom. What was its point of departure? Did it precede or follow gastro-intestinal inflammation? had the mental vexations experienced by the patient any influence on its development? was this atrophy of the liver, this change of its natural parenchyma into as it were a cellulo-fibrous tissue; were these alterations of nutrition referable to an inflammatory process? are they not rather the result of an entirely opposite state? is there not some analogy between this liver diminished in size, and the natural parenchyma of which tends to become changed into a cellular and fibrous web, and those organs which, when they become atrophied, leave nothing behind them but cellular tissue, or fibrous cords? (Thymus gland, arteries and veins, etc.)

This liver, thus atrophied, hardened, and changed in its texture, no longer allowed a free passage to the blood of the vena portæ; thence the production of ascites, and afterwards that of œdema of the lower extremities.

However, changed as it was, and deprived of a part of the vessels, which appeared to be obliterated, this liver still secreted bile, and no jaundice ever took place. In the following case, where we shall find an alteration of the liver precisely similar, we shall detect on the contrary the existence of jaundice. Thus; the further we advance, the more we see proofs of this assertion increased, namely, that the production of jaundice depends on other conditions than the nature of the change in the liver.

The redness and dryness of the tongue which supervened towards the termination, the increase of the intestinal flux, the prostration which accompanied these symptoms, depended no doubt on an exasperation of the old inflammations of the digestive passages; the redness, without softening, of the splenic portion of the stomach, was probably the organic lesion which corresponded with this exasperation. It is probable that in many cases the stomach may thus become congested without serious symptoms resulting from it; but, occurring in an individual already much debilitated, this congestion soon terminated fatally.

So true is it that as a general principle it is not on the intensity of the lesions that the severity of the symptoms depends, but rather on the disposition in which these lesions find the individuals in whom they occur.

Case 13.—Atrophy of the liver, with cellulo-fibrous appearance of its tissue—Dropsy—Jaundice—Healthy state of the digestive tube—Gangrenous erysipelas of an extremity.

A jockey, fifty-two years old, had an ascites and considerable infiltration of the lower extremities when he entered the Charité; moreover the conjunctivæ and the entire cutaneous surface presented a greenish-yellow tint. He stated that for several years back he had been dropsical and jaundiced. He had been losing his strength and flesh for some time, without his appetite being ever diminished, when he perceived his abdomen increased in size, nearly at the same time he began to become yellow. He assured us he had never felt any pain or uneasiness in the region of the liver; the abdomen, when examined with the hand, was not painful in any part; no tumour was detected in it; the tongue presented its natural appearance; the appetite was retained; the introduction of food into the stomach did not occasion any local or general indisposition; the stools were scanty, but coloured as in a person in perfect health; the pulse was free from frequency. The patient was in very good spirits. A few days after his admission paracentesis was performed; during the three weeks following it was twice repeated; but each time the peritoneal liquid was reproduced with astonishing rapidity. Different diuretics were ordered, but without any increase in the urinary secretion following their employment. Still the patient became weak, and his appetite declined, when after scarifications being made on the two lower extremities, which were in a state of considerable œdema, a livid redness attacked the skin of the right leg; on the third day of the appearance of this redness, the skin which was the seat of it became gangrenous; at the same time rapid prostration set in. Death took place six days after the appearance of erysipelas.

Post-mortem. The liver and its appendages were so very like what was described in the preceding case (Case 12), that, to avoid repetition, we refer to that description. A great quantity of limpid serum was found in the peritoneum, without any trace of peritonitis.

This case, in which we find an alteration of the liver precisely similar to that described in the Twelfth Case, which, like the latter, presents total absence of pain in the region of the liver, and the production of dropsy, differs from it, 1°, in the existence of the jaundice, which supervened, though during life the bile seemed to flow into the duodenum, as was proved by the nature of the stools; 2°, this case differs again from the preceding in the absence of all symptoms of gastro-enterite, and in the very healthy state in which the digestive tube was found after death.

The gradual debility of the patient seemed to be the twofold result both of the affection of the liver and of the loss of serum sustained by the patient, the ascites being very rapidly reproduced after each of the three operations, which were performed successively in a very short space of time. These operations of paracentesis were really attended then with injurious effects; for without

them the blood would have lost less serum. We see here again that diuretics proved ineffectual. It may be readily conceived that they might have more influence if the object was to replace one active secretion by another. But here it was necessary to be able to remove the mechanical obstacle, which, by preventing the blood from freely traversing the liver, forced the thinnest part of this fluid to transude through the venous capillaries.

Death was evidently the result of the gangrenous erysipelas which attacked the skin of one of the legs after the scarification. Surely the termination of this erysipelas in gangrene will not be here attributed to an excess of inflammation.

Case 14.—Granulated state of the liver, with increase in its density and diminution in its size—Dropsy—Absence of jaundice and of pain—Gastro-intestinal inflammation.

A man, sixty-seven years of age, who had indulged all his life in the excessive abuse of ardent spirits, beheld his house pillaged in 1814, and his fortune destroyed. Being thus reduced to a state bordering on beggary, he had the additional misfortune to lose several of his children; however, his health remained good till towards the middle of May, 1821. He then perceived that the parts around the ankles became œdematous. This œdema increased up to the month of June, at which time the patient, feeling himself very weak, no longer left his bed-room. The dropsy extended gradually to the thighs and abdomen; the breathing always remained free; he never had had any abdominal pain. Towards the end of October the distension of the abdomen was enormous; paracentesis was then performed; he entered the Charité on the 19th of December, and then presented the following state: — emaciation of the face and extremities, evident fluctuation in the abdomen, which is very much swollen, and also free from pain; lower extremities considerably swollen; the skin of the right leg of a livid red colour, and presented numerous fissures, through which a considerable quantity of serum flowed spontaneously. The breathing, which till then was free, has recently become embarrassed (probably occasioned by the pressure on the diaphragm by the serum in the peritoneum). Slight cough; percussion and auscultation do not detect in the thoracic organs any appreciable lesions except some moist bronchial râle in different points, more especially on the left, posteriorly. Pulse very small, frequent, and presenting great irregularity with respect to the strength and return of the pulsations; tongue moist, and of a bright red; thirst moderate; sufficient appetite; stools natural; urine scanty, but limpid. (Diuretic mixture, calomel and soap pills.)

On the 22d paracentesis was performed. A bucket of limpid serum was drawn off. Notwithstanding the collapsed state of the abdominal parietes, we could discover no tumour either in the right hypochondrium or elsewhere.

From the 22d to the 25th the patient stated that he found himself very well; but on the morning of the latter day a considerable change took place with respect to the state of the digestive passages. He now felt an utter dislike for food; the tongue was dry and brown; several liquid stools had taken place; the frequency of the pulse was very much increased, being 130 per minute. The same medicines were continued. On the twenty-sixth the features were altered; great prostration was now observed; dryness and brown colour of the tongue increased; very painful tenesmus; stools slimy and bloody; pulse scarcely perceptible, and remarkably irregular; urine red and turbid. Reappearance of the ascites (anodyne and demulcent lavement, leeches to the anus, mucilaginous ptisan). No change from the 26th to the 30th. On the 30th the abdomen was as large as it was before paracentesis was performed: the operation was again resorted to, after which the patient found some temporary

relief; but the day after the prostration was greater than ever. The face was very much emaciated; the patient felt convinced of approaching dissolution. He had constant vomiting during the day. In three days more diarrhœa set in; the pulse became still weaker, the vomiting continued, and the patient died without evincing the least disturbance of the intellectual functions.

Post-mortem.—Great marasmus of the face and upper extremities; considerable infiltration of the thighs and legs; ascites.

Liver extremely small, occupying but a small portion of the right hypochondrium, and of a brownish colour. When viewed externally, it appeared as if contracted and shrivelled. When cut into, it presented a very dense tissue. Instead of presenting its usual red colour, separated into areolæ by numerous lines or white circumvolutions, it seemed merely to consist of an infinite number of granulations, of a brownish-green colour, of the size of a grain of millet, pressed one upon another; but little blood flowed from it when cut into. A very small quantity of colourless bile, appearing to consist merely of water, albumen, and a little yellow colouring matter, was contained in the gall-bladder. Nothing remarkable in the biliary ducts.

The inner surface of the stomach, which was distended with liquids, presented an almost uniform redness from the cardia to the vicinity of the pylorus; the seat of this redness was the mucous membrane, which, being a little thickened, still retained its ordinary consistence. The whiteness of the small intestine formed a striking contrast to the redness of the stomach; only to the extent of a foot above the cæcum there appeared on the internal surface some small, reddish, rounded bodies, which seemed to be mucous cryptæ in a state of inflammation. A blackish colour and evident thickening of the mucous membrane of the cæcum and of the ascending colon. The transverse colon was white; there was a redness like wine-lees on the internal surface of the rest of the large intestine, as far as its anal extremity. This redness was seated entirely in the mucous membrane, which was three times its natural thickness; its consistence also was perceptibly increased. A considerable quantity of liquid black blood filled the four cavities of the heart, which in other respects was healthy; neither was there any appreciable alteration in the large vessels which proceed from this organ or enter it. General redness of the bronchi; a frothy colourless serum flowed from the pulmonary parenchyma when cut into. *Cranium.*—Considerable serous infiltration of the sub-arachnoid cellular tissue on the convexity of the hemispheres. The central substance was remarkably soft (the body was opened seventeen hours after death). One would have said that this substance was, as it were, infiltrated with liquid. From the middle of the internal surface of the corpus striatum of the right side, a small, whitish, friable body arose, about the size of a common pea, which was depressed to the depth of one or two lines in the grey substance of the corpus striatum, which was perfectly healthy around it.

We have here a remarkable instance of that peculiar alteration of the liver which has been designated a granulated state of that organ — a state which had been already observed by Morgagni in several dropsical patients, and which seems to us not to have sufficiently engaged the attention of modern observers. Here this granulated state had acquired, if we may so say, its maximum of development. The entire parenchyma of the liver really consisted merely of granulations collected and grouped one upon the other. Still there was not one visible on the outside of the organ. It was diminished in size, and seemed atrophied; but, as we have already endeavoured to explain above, the atrophy affected only one of the anatomical elements of the liver, whilst one or several of its elements seemed to be hypertrophied, from whence arose the appearance of these numberless granulations.

If we now direct our attention to the causes which might exert some influence

on this remarkable alteration of the liver, we shall find them to be the abuse of spirituous liquors, and great mental distress, occurring at a time when the nervous system, changed from its normal state, has a peculiar tendency to modify the digestive apparatus and its appendages in their organisation, functions, and vital properties. There is no proof that in this case the affection of the liver was preceded by an acute or chronic affection of the digestive tube. The commencement of the disease of the liver was very obscure ; it was not announced by any pain, by any tumefaction of the hypochondrium, or any trace of jaundice ; the only thing observed was, that the patient's strength diminished, he lost flesh, and, after these phenomena alone denoted for a certain time that an important organ was affected, traces of dropsy appeared. The course of the latter disease was not that usually observed in diseases of the liver. Commencing at the interior part of the lower extremities, extending progressively, and from below upwards, to the legs, and then to the thighs, attacking the peritoneum only consecutively, would not one have said that it depended on organic disease of the heart? A new phenomenon further contributed to mislead one with respect to the real seat of the disease, namely, the great irregularity of the pulse ; and still the heart was free from all organic disease, the cause of the dropsy being seated in the liver. So true is it that in medicine the most general rules have almost always their exceptions.

At the time the patient entered the hospital the digestive functions did not yet appear to have undergone any perceptible change ; at a later period symptoms of gastro-intestinal irritation were observed to appear: as in the majority of those cases where the latter supervenes at an advanced period of chronic diseases, it rapidly gave rise to that group of symptoms which constitute one of the varieties of what is called adynamic fever. There were here well-marked dysenteric symptoms, and the autopsy detected the existence of a very serious inflammatory alteration of the termination of the colon and rectum. The small tubercle implanted in the corpus striatum, the existence of which was not indicated during life by any symptoms, is deserving of notice.

ARTICLE III.

OBSERVATIONS WITH RESPECT TO ACCIDENTAL PRODUCTIONS ARISING IN THE LIVER.

By this term we designate every solid or liquid substance formed accidentally in the midst of the parenchyma of the liver, such as fatty matter, pus, tubercle, cancerous substance, serous cysts, and hydatids.

Of these several products some most commonly appear in the liver only after an evident process of inflammation ; others are not in all cases so evidently preceded by this process ; whilst in others there is no proof that inflammation ever existed.

We shall now cite a certain number of cases calculated to point out the more or less characteristic symptoms occasioned by several of these productions.

We shall first speak of abscesses of the liver, on which M. Louis has recently published some very interesting observations, the principal results of which agree with those to which our own observations shall lead.

SECTION I.

CASES OF ABSCESSES OF THE LIVER.

CASE 15.—Febrile jaundice—Painful tumefaction of the right hypochondrium—Purulent depositions scattered through the liver, with redness and softening of its tissue around them—Healthy state of all the other organs.

A woman, twenty-nine years of age, felt, seven days before entering the hospital, general indisposition, lassitude, then a shivering, which lasted for about two hours, and was followed by an intense heat, which continued. During the first two days no symptom characteristic of the suffering of any particular organ was observed. On the third day she felt pain in the liver and right side of the chest. On the fourth and fifth day this pain continued, and extended into the right hypochondrium. On the sixth day she began to become yellow; on the seventh her state was as follows:

Yellow tint of the conjunctivæ and face, which was less marked on the skin of the rest of the body; pains in the limbs; fixed pain in the site of the last ribs of the right side, and below them; right hypochondrium tense, and painful on pressure. We thought we discovered an ill-defined tumour in this part, to the extent of two or three inches below the edge of the ribs; tongue whitish, without any redness; no thirst, nor appetite; epigastrium soft, and free from pain; stools scanty, solid, and yellowish; urine small in quantity, of an orange colour; pulse frequent and hard; skin very hot and dry. She feels difficulty in changing her position; intellects dull. She complains of being very weak. The painful tumefaction of the right hypochondrium, the jaundice, and accompanying fever, seemed to indicate the presence of acute hepatitis. There was no proof that the digestive passages were affected at the same time. (Twenty-four leeches to the anus; ptisan diet.)

On the 8th and 9th day all the symptoms worse. Eyes dull and devoid of expression; the mouth remained half open; answers slow, difficult, and inaccurate; she put out her tongue, and forgot it between the lips. The entire skin very yellow; the pulse still frequent and hard; the pain and tumefaction of the hypochondrium continued.

On the 11th and 12th days all the symptoms of ataxic fever were observed; patient comatose; pupils very much dilated, and fixed; it is not entirely certain that she retains the faculty of seeing. When the skin of the extremities is pinched, she retracts them quickly. Skin continually hot and dry, and very yellow; pulse very frequent, and irregular with respect to its strength. Tongue dry, and not red. (The dryness may depend on the open state of the mouth.) Fifteen leeches behind each ear, blisters to the thighs, &c.

On the 13th day; symptoms the same, abdomen tympanitic; constipation; involuntary discharge of urine. (Lavement with the addition of half a drachm of sulphate of quinine.) On the 14th day all the symptoms still worse. She died during the night.

Post-mortem. The entire cutaneous surface of a deep yellow colour. Considerable embonpoint. On feeling the right hypochondrium we circumscribed the sharp edge of the liver two fingers' breadth below the edge of the ribs. Abdomen very tympanitic.

On raising the abdominal parietes we perceived the liver pass some inches below the edge of the ribs; it did not extend into the left hypochondrium. Externally it was of a bright red colour, and on three points of its convex surface we distinguished small spots of a yellowish white colour. On cutting into each of these spots, we penetrated into a small abscess which might contain a filbert.

In the interior of the liver from seven to eight purulent collections were scattered, the largest of which might have held a filbert, as the three preceding, the smallest of which seemed to consist merely of a drop of pus. The parietes of the cavities in which the pus was lodged were lined merely by a thin membranous layer not organised. The hepatic parenchyma was of a bright red colour in every part, and was evidently softened. A great quantity of blood flowed from it when cut into.

The large intestine, and several convolutions of the small intestine, were distended with gas. In the chest the heart was found filled with fibrinous coagula of great consistence, deprived in a great measure of colouring matter. Some stony concretions in the bronchial glands. In the cranium there was considerable injection of the subarachnoid cellular tissue ; the cortical substance was of a rose colour ; some red points were observed in the white substance. There was about a spoonful of limpid serum in each lateral ventricle.

This case of abscess of the liver is the only one we have had an opportunity of observing unaccompanied by a lesion of other organs. The hepatitis lasted fifteen days at most, and was, consequently, acute in its nature ; the pus was not collected in the liver into one single abscess; but several small abscesses were found in this organ, some on its surface, others in its substance. M. Louis has seen a similar phenomenon ; but, in the cases observed by him, there was around the pus a false membrane, much more developed than that which we found here. In this case, as in those cited by M. Louis, the parenchyma of the liver was red and softened, not only around each abscess, but over the entire of the organ. The pus had not that colour of wine-lees which is said to belong to pus in the liver. It was of a greenish white colour, and creamy, like healthy pus secreted in inflamed cellular tissue.

At the onset of the disease there was observed merely that general state which exists at the commencement of most acute affections : then the symptoms of hepatitis became developed ; its existence was indicated chiefly by four phenomena : pain in the right side of the chest, tumefaction of the hypochondrium, jaundice and fever. Any one of these signs, even the jaundice itself, taken separately, would have had but little value ; but their combination attached considerable certainty to the diagnosis. The nature of the stools, the examination of the body, also concurred in proving that the jaundice was not here dependent on an obstacle to the course of the bile, and that the latter freely entered the duodenum. Pain preceded the appearance of the jaundice.

These symptoms alone would not have occasioned death in so short a time. But the affection of the liver reacted on the brain, and the irritation of this organ, which was altogether sympathetic, produced the most serious results ; that group of symptoms was then observed which characterise ataxic fever ; the brain affection was the cause of death.

The *post-mortem* examination presented a perfectly healthy state of the digestive tube. Thus, in this case, the ataxic fever had its point of departure solely in the liver ; and, besides, the affection of the latter organ was wholly independent of disease of the digestive passages. It might be said, to be sure, that at the onset there was gastro-enteritis, and that on this depended the general state of the patient during the first days of the disease, and that the inflammation, attacking the liver, left the intestine ; but this is mere hypothesis.

We may remark that the meteorism observed in this individual, towards the termination of life, was independent of an inflammatory state of the parts of the intestine where it was seated.

Case 16.—Abscess of the liver with redness and softening of its tissue—Painful tumour of the right hypochondrium, supervening during the progress of a chronic gastro-enterite—No jaundice.

A man, thirty-nine years of age, experienced for the last three years nearly

all the symptoms of a chronic gastro-enterite. At first his appetite frequently became deranged, and left him from time to time; then complete anorexia set in; feeling of weight in the epigastrium, and sometimes actual pain beneath the xiphoid cartilage, and towards the left hypochondrium, after introducing food of any kind into the stomach; frequent eructations; vomiting from time to time; constipation and diarrhœa alternately. The stools were sometimes serous, and occasionally bloody. The patient gradually lost flesh and strength, and, since the last few months, a short dry cough supervened. He was very much emaciated when he entered the Charité. Then the abdomen was soft and free from pain. (Rice-water with gum, starch enema, with some drops of Rousseau's laudanum, etc.) During the first fifteen days he presented nothing new; the continuance of his cough induced us to examine his chest, but we found nothing morbid in that part. The pulse was habitually a little frequent, without the temperature of the skin being raised. The means employed to check the diarrhœa having failed, we had recourse to astringent tonics. (Decoction of simarouba, pills consisting of extract of rhatany and dragon's blood.) But, a few days after the employment of these, the abdomen, hitherto free from pain, became painful; fever supervened; the stools were tinged with blood. We then had recourse to gum-water, rice ptisan, Sydenham's white decoction. The stools in a little time became purely serous, the heat of skin ceased, and the abdomen was no longer painful. But, in a little time, other symptoms appeared; after a violent attack of shivering, a pain more remarkable for its extent than acuteness was felt on the lower and right side of the chest, and at the same time a continued fever set in, with considerable exacerbation every evening. At first we thought that this pain and the accompanying fever were connected with pleuritis; and, to combat it, twenty leeches were applied to the affected side; afterwards a large blister was applied. This pain and fever lasted for eight days without the cough being increased, and without there being any dyspnœa, when the patient complained of the pain extending into the right hypochondrium. We examined this region, and actually found it painful to the touch, and also tense and swollen. We then asked ourselves whether the case was not one of hepatitis, and whether the thoracic pain, fever, and great anxiety of the patient, did not depend on this inflammation rather than on inflammation of the lung or pleura. Still there was not the least appearance of jaundice. On the other hand, nothing indicated that there was any exasperation of the chronic affection of the digestive passages: the tongue was remarkable only for its paleness; the stools retained the same character. Leeches were applied over the hypochondrium, which neither rendered it softer nor less painful. During the nine days following a tumour was observed in this hypochondrium to the extent of some fingers' breadth beneath the ribs. Debility increased rapidly, profuse diarrhœa set in, and he died in a little time.

Post-mortem. On examining the right hypochondrium with the hand, we thought we discovered, in the situation where the tumour did exist, an obscure fluctuation; a bistoury was plunged into it before the abdominal parietes were removed, and a considerable quantity of pus gushed out. We soon felt satisfied that the tumour belonged to the enlarged liver, which descended full three fingers' breadth beneath the ribs; the bistoury penetrated into a cavity formed in its tissue large enough to contain an orange, filled with good creamy pus. This cavity was formed in the very substance of the liver, for its parietes on every side consisted of the tissue of this organ; they were lined with a whitish membraniform layer, which did not appear to be organised. Anteriorly, over the portion of the liver which formed the tumour, this viscus was connected to the abdominal parietes by soft peritoneal adhesions, not yet organised into cellular tissue, and which seemed to be of recent formation. No other trace of peritonitis was found in the rest of the abdomen. The purulent collection just described was the only one that existed in the liver; but the tissue of this

organ was red every where, and remarkably soft; the least force lacerated it, and the slightest pressure reduced it to a pap. The mucous membrane of the stomach was actually liquefied, and changed into a reddish pulp over all the great cul-de-sac. In the pyloric portion this same mucous membrane was of a slate colour, thickened and unequal on its surface, and mammillated.

The duodenum was healthy, as also the upper portions of the small intestine. In the lower part of the ileum, and in the cæcum, numerous ulcerations were found of an irregular form, the bottom of which was formed of thickened cellular tissue, and the edges of mucous membrane; white in some; red, livid, brown, or black, in others.

In the upper lobe of each lung some crude tubercles were found, between which the pulmonary parenchyma was healthy.

Here again the existence of hepatitis coincided with that of gastro-enterite, but the latter was chronic, and it was only after it had been in existence for years that the liver appeared to begin to suffer irritation. Probably the stimulating medicines employed in order to combat the diarrhœa, had some influence on the development of the affection of the liver. It certainly was a little time after the administration of the decoction of simarouba, and the other medicines, that a pain was felt towards the region of the liver, and that the right hypochondrium became swollen. Such were the only signs which announced the hepatitis; there never was jaundice; even the urine did not become coloured, so that, before the appearance of the tumour in the hypochondrium, the pain on the right side of the chest, accompanied by a high fever, might have been referred to an intercurrent inflammation of the pleura: it must be remarked, however, that there was no dyspnœa; but dyspnœa does not always exist in pleuritis. Why was there no jaundice in this case, when it was observed in the preceding cases where the same lesions existed? This we are unable to determine.

Here, again, we find the liver red and softened, at the same time that it contained a cavity full of pus. This cavity was very superficially situated; adhesive inflammation was developed between the point of the external surface of the liver beneath which it existed and the abdominal parietes; under such circumstances the latter might also have become inflamed in their turn, and in consequence of the tendency of pus, as of every foreign body, to make its way to the exterior, it might have escaped through the abdominal parietes.

This superficial situation of the abscess gave rise, where it did exist, to an obscure fluctuation, which was recognised only on the dead body, and which, if ascertained during life, might have led us to diagnose the presence of an abscess in the liver. However, it might have still been a question whether this fluctuation was the result of an abscess formed in the hepatic parenchyma, or whether it was not owing either to a sac of hydatids developed in the liver; but then the tumour would not have been formed with so much rapidity; or to the gall-bladder filled with some liquid, but one might have detected its form, and could have circumscribed it; or to an encysted abscess of the peritoneum.

We shall again direct the reader's attention, 1st, to the lesions found in the digestive tube of an individual, who for the last three years presented the signs of a chronic gastro-enterite; 2dly, to the healthy state of the duodenum, notwithstanding the serious disease of the liver; 3dly, to the total absence of abdominal pains, notwithstanding the existence of numerous ulcerations in several points of the intestine (this is the most common case when these ulcerations are formed chronically, and even when they succeed to acute inflammation); 4thly, to the bad effects produced by astringent tonics, which excited fever, occasioned pains in the abdomen, and produced bloody stools; 5thly, to the well-marked difference which existed with respect to the nature of the lesions

between the splenic and pyloric portions of the stomach ; 6thly, to the tubercles developed in the lung, the existence of which could not have been suspected. In this respect it is a case similar to those of which we have cited several instances in this work, and in which, according to a course the reverse of that most ordinarily observed, pulmonary phthisis is developed consecutively to what might be called intestinal phthisis. It is further to be remarked that, notwithstanding the long continuance of the intestinal inflammation, there were no tubercles developed either in the coats of the intestine, or in the corresponding mesenteric glands ; and still there was evidently a predisposition to the formation of these tubercles, since the lungs contained some.

Case 17.—Numerous abscesses in the liver, with redness and softening of the parenchyma around them—Absence of jaundice, pain, and swelling—Acute inflammation of the left lung and stomach.

A middle-aged woman was in the enjoyment of good health, when she was attacked with a stitch in the side beneath the left mamma, all the characteristic signs of acute pleuro-pneumonia soon appeared. We saw her five days after the attack of the stitch in the side ; the breathing was then very much impeded ; her countenance indicated the most intense anxiety ; cheeks flushed, without there being the least appearance of jaundice. The sputa were rust-coloured, viscid, uniting into a transparent mass, which adhered to the vessel, and could not be detached even by inverting it. This woman's reluctance to submit to examination prevented us from percussing or auscultating her with sufficient accuracy. There was intense fever, and also some signs of gastric complication, such as red, smooth, and dry tongue, great thirst, some vomiting from the onset of the disease, pain in the epigastrium from slight pressure. The rest of the abdomen, and particularly the right hypochondrium, was soft and free from pain. No pain had been felt in the chest.

During the six days following venesection was employed, blisters to the lower extremities, and emollient drinks. The disease became worse, dyspnœa increased, the sputa were no longer viscid, but took on the appearance of prune juice. The patient died on the thirteenth day after the commencement of the stitch in the side. Up to the last moment there was no jaundice, nor had any pain been complained of in the region of the liver.

Post-mortem.—Cranium. Subarachnoid cellular tissue was infiltrated with so much serum that the arachnoid was raised several lines by it ; this serum was very transparent ; a considerable quantity of it was also found in the ventricles.

Chest. The lower lobe of the left lung presented a mixture of red and grey hepatisation. The pleuræ pulmonalis and costalis of this side were united by soft adhesions. A little pus was found between the laminæ of the anterior mediastinum behind the sternum.

Abdomen. The liver was of the ordinary size ; when viewed externally it appeared healthy. Incisions were made in several parts of it, which detected no disease at first, but on making another we detected an abscess of sufficient size to contain a kidney-bean, surrounded for some lines by a red and softened tissue. On pursuing our researches we detected nine other abscesses within the substance of the liver, one of which might contain a large nut ; the others might hold a kidney-bean, a nut, or a pea. The pus which they contained was of a greenish white colour, like the pus of a phlegmon. A soft false membrane, not organised, resembling solidified pus, lined the parietes of these abscesses. Around each of them, to the extent of two or three inches, the hepatic parenchyma was softened, and of a much deeper red colour than in the other points situate at a greater distance from the abscesses.

The mucous membrane of the stomach presented some bright red dots along the small curvature and on the great cul-de-sac. In this part also it was softened; one could remove it in shreds. Nothing was found in the rest of the digestive tube but a slight vascular injection at intervals. In the place of one of the ovaries nothing was found but a serous pouch, large enough to contain an apple. A large fibrous body, the size of a nut, was found within the uterus, beneath the proper tissue of this organ and the peritoneum.

We do not here find any sign which could have induced us even to suspect the existence of any affection of the liver; there was not the least trace of jaundice; no tumour was observed in the right hypochondrium, nor pain in the hepatic region. The changes found in the liver, similar in their nature to those described in the preceding cases, differ from them in extent and arrangement. The abscesses were small, but very numerous, and it was only in the vicinity of each of them that marks of an inflammatory process (redness and softening) were found. Thus in this individual there were ten abscesses scattered through the liver, but which, taken together, would not constitute an inflammation of any considerable extent. It may, however, be reasonably admitted that the absence of jaundice depended on this circumstance, that a portion of the hepatic parenchyma had remained healthy.

There is nothing to show whether the affection of the liver in this case was acute or chronic; whether it existed long before the twofold inflammation of the lung and stomach; or whether it supervened at the same time. On the first hypothesis it would be necessary to admit that many points of the hepatic parenchyma might be attacked with inflammation, and become the seat of abscesses, without the health being in any way affected, which, though not impossible, is scarcely probable. On the one hand the appearance of the membrane lining the parietes of each abscess did not seem to indicate that the latter was of a long standing. We would, therefore, be inclined to think that the hepatitis commenced at the same time as the gastritis and the pleuro-pneumonia; if this be correct, the case just cited would afford an instance of inflammation of the liver, terminating in suppuration, from the twelfth to the thirteenth day after its commencement; but we entertain some well-founded doubts regarding the period at which pus began to form in the liver.

Case 18.—Abscess of the liver, with loss of colour and general softening of its tissue—Pain of long standing on the right side of the chest—Chronic nephritis—Acute entero-colitis towards the termination.

A woman, about fifty years of age, had been voiding purulent urine for the last three years; she felt habitual pain in the region of the right kidney; besides, nearly since the same period, she felt another pain, very distinct from the preceding, under the last ribs of the right side; this pain, which was in general slight, became occasionally very acute. She wasted away gradually, and when we saw her she was in a very advanced stage of marasmus. She had never had jaundice. Her countenance was pale, jaws hollowed, the eyes sunk in their orbits, deep ulceration existed on one of the transparent corneæ. She was so weak for several months back that she was obliged to keep her bed. All the right flank was painful to the touch; it was evidently tense, more prominent than the other; no tumour could be circumscribed. From time to time the patient felt a very acute pain, which generally lasted for some minutes, and which seemed to follow the course of the ureter. The urine, which was in tolerable quantity, presented a whitish sediment, which seemed to consist of pus. In the site of the last ribs of the right side, both anteriorly and posteriorly, the patient complained of another pain, which was not accompanied either by cough or dyspnœa. The right hypochondrium was soft and free from pain, as well as the rest of the abdomen. Tongue pale, without any coat-

ing; no thirst, appetite very small; stools scanty, consistent, and generally of a brown colour. In the course of the day there was a little frequency of the pulse, without any increase in the temperature of the skin; but every evening some febrile disturbance set in; it sometimes commenced by a little shivering, and never terminated in a sweat.

This woman was considered as labouring under chronic inflammation of the right kidney. With respect to the pain which she felt about the last ribs on the right side, we were inclined to think that it depended on a chronic inflammation of a portion of serous membrane, either of the perihepatic peritoneum or of the pleura.

The long standing of the disease, the hectic fever, and the emaciated state of the individual, rendered the prognosis very unfavourable; recovery seemed impossible: a palliative treatment was all that could be adopted. (Barley ptisan, narcotic cataplasms around the right flank, sinapisms from time to time over the lower extremities, light nourishment.) The state of the patient became worse and worse; the marasmus continually increased, and the debility became extreme. Diarrhœa now set in; stools, resembling water coloured yellow, to the number of eight or ten in twenty-four hours, not accompanied with abdominal pains. Ten days after she died. Up to the last moment the tongue remained pale and moist; the intellectual faculties remained intact; no embarrassment of the respiration was observed.

Post-mortem. Extreme marasmus.

Abdomen. The right kidney was remarkably large. It consisted merely of an immense pouch filled with pus, divided into several compartments, and communicating freely with the pelvis; the interior of the latter was also full of pus; its surface was red, as also that of the ureter. There was also found in the fundus of the bladder some redness, in the form of small spots, to the number of five or six, between which the mucous membrane was white. A seropurulent liquid was infiltrated into the intermuscular and subcutaneous cellular tissue of the posterior parietes of the right flank.

Liver not larger than usual; but its tissue was everywhere of a pale grey colour, and so softened that the finger, on pressing it, sunk into it, and reduced it to a greyish pulp; very little blood flowed from it when cut into. Towards the centre of the right lobe there was a cavity which might have contained a hen's egg, and which was filled with a whitish inodorous pus, resembling the healthy pus of phlegmons. The parietes of this cavity were lined by a false membrane, which was very dense and thick, consisting of an assemblage of fibres interlacing in different directions. Immediately around this abscess the liver was not redder than elsewhere.

The mucous membrane of the stomach was a little softened towards the great cul-de-sac. The mucous membrane of the ileum, to the extent of about two feet above the cæcum, and also a considerable portion of the colon, presented a bright red appearance, with softening of its tissue in some points.

The pleuræ presented no trace of inflammation except towards the summit of the left lung; there we found a sort of coif, of cartilaginous consistence, around the lung; beneath it the pulmonary parenchyma was hard and black.

In the disease whose history has been now traced it seems that the affection of the liver performed but a very secondary part. No doubt this affection contributed to the emaciation of the subject; but during life the nephritis alone gave characteristic signs of its existence. The pain felt towards the hepatic region might in fact be referred to several parts, and by itself it could not indicate a disease of the liver.

The change which this organ underwent differs, in some respects, from that found in the preceding cases. Here too, no doubt, pus was formed; around the abscess, and over the remainder of the hepatic parenchyma, there was also

marked softening of the tissue of the liver; but this organ, far from being redder, was, on the contrary, much paler, and contained much less blood than in its normal state.

We have already detected in other cases the existence of a similar softening of the liver, with evident loss of colour in its tissue. We then hesitated to pronounce whether it was an inflammatory lesion. Here the coexistence of an abscess with a similar state of the liver seems to prove the inflammatory nature of this state, though in our opinion it does not prove it sufficiently. May not two affections of a different nature exist simultaneously in an organ? We must not suppose that we are necessarily to find inflammation around an abscess; we have seen more than one case in which the organ in which the abscess was presented no other trace of lesion but this abscess itself.

No doubt but the disease of the liver in this individual followed a very chronic course. The long continuance of the pain might alone prove it; but we have an additional proof of the fact in the texture of the false membrane which lined the parietes of the abscess.

Here again an acute inflammation terminated the patient's life. The diarrhœa which succeeded an habitual constipation was the only sign of the acute entero-colitis, the existence of which was proved by the *post-mortem* examination. This serous diarrhœa, which came on without any pain, in an individual already worn out by a lingering disease, would have been classed some years ago in the number of what are called colliquative sweats, and considered as totally independent of inflammation; the latter, however, was real. No doubt the inflammations which come on under such circumstances are not connected with a plethoric state; but it must be admitted as a fact, that however small the quantity of blood is which remains in the system, and however exhausted the strength of the patient may seem to be, there is nevertheless a very ready and very frequent afflux of this residue of blood and strength towards different irritated points, and particularly towards the gastro-intestinal mucous membrane. It would seem that, from the mere circumstance of the primary chronic affection having destroyed the equilibrium of the healthy state, there is a constant tendency to an unequal distribution of life and blood in the different organs.

Case 19.—Abscess of the liver opening into the stomach—Symptoms of chronic gastritis—Jaundice at the onset.

We possess but little information with respect to the case of the individual here referred to; we know, however, that when he entered the Charité he had been for a long time complaining of anorexia, pain in the epigastrium, never of vomiting, frequent accessions of fever, and that he was very much emaciated. The skin was merely pale; but two years before, towards the commencement of his illness, the patient had had jaundice, which lasted four months.

The *post-mortem* examination presented the following lesions:

1st. In the cranium, ossification of a considerable portion of the falx of the dura mater. (The patient was scarcely forty years of age.)

2d. In the chest, some tubercles scattered through the pulmonary parenchyma, which in other respects was healthy.

3d. In the abdomen, close adhesions between the liver and stomach. On the interior the latter viscus presented, towards its posterior surface, a solution of continuity which involved all its tunics, about the breadth of a two-franc piece, through which a probe being introduced penetrated into a cavity in the liver large enough to contain an orange, and which was filled with genuine pus. The parietes of this cavity were lined with a thick membrane, which seemed to be of a fibro-mucous texture.

The perforation of the stomach seemed to be from without inwards; the in-

flammation extended at first from the liver towards the peritoneum situate between it and the stomach, and occasioned the formation of adhesions between these two organs; at a later period the coats of the stomach became in their turn inflamed in a circumscribed portion of their extent; and the peritoneal, cellular, muscular, and mucous membranes became successively and simultaneously destroyed. So that this differs from other more common cases, in which an ulceration forming in the stomach from within outwards, ultimately destroys all the tunics of the stomach at the point where it first commenced; and then the parietes of the stomach, completely destroyed at this point, are supplied either by the liver, or by the pancreas, &c.

Be this as it may, the purulent cavity formed in the liver must naturally empty itself in part into the stomach. Would pus have been found in the alvine evacuations? It should be observed that the opening which communicated between the interior of the stomach and the hepatic abscess was still inconsiderable, and had probably existed but for a short time. The nature of the stools alone might have thrown some light on this latter point. Under such circumstances could the parietes of the abscess have approximated gradually, according as it emptied itself into the stomach? If that had occurred, we may easily conceive that the cure of the liver disease would not have been impossible.

We should not forget to remark that, in the case now detailed, no appreciable alteration of the liver existed except where the abscess was; we have, however, no hesitation in considering this as having been produced by an inflammatory process. But, suppose a hard substance, encephaloid tissue, for instance, existing in this way in the midst of the liver, without any alteration in the texture of the organ around it, this latter circumstance cannot serve as a reason for denying the existence of a previous inflammation where the accidental production was originally formed. Besides it is probable that at a certain period the liver would have been found more or less changed around the abscess; but it had returned to its normal state, according as a membrane, becoming organised around the pus, had gone on to separate it more completely from the hepatic parenchyma, in which it remained as a foreign body. In this state of things, the existence of an abscess in the liver may be easily conceived, without any disturbance occurring either with respect to the texture or the functions of this organ: this is what unquestionably happens with respect to the encephalon: observation has proved the existence of encysted abscesses in the brain of individuals who, for a longer or shorter time before, had had all the signs of an acute encephalitis. The symptoms of the latter had disappeared, and the disease might have been considered as completely cured; this cure, however, was only provisional in some degree, until a new process of inflammation was set up around the abscess. Thus, also, we may readily conceive how a foreign body might remain for a long time in the brain, without manifesting its presence by any symptom, and then all at once indicate its existence by different signs of encephalitis or cerebral hemorrhage.

In the individual whose case gave rise to these reflections there was no characteristic sign of any chronic affection of the liver. But, if we go back to examine the other periods of his disease, we shall find that, when he commenced no longer to enjoy his habitual health, he had jaundice of considerable duration. At no period, moreover, were the inflammation of the liver, and the suppuration in which it terminated, indicated by any pain. This is again less surprising in this case, where the disease followed an essentially chronic course, than in other well-attested cases wherein the course of the disease was acute.

If it be true that pain occurs in the majority of acute inflammations, it must also be acknowledged that in none is it a necessary condition of their existence. Are there not cases of pleuritis and peritonitis unaccompanied with pain?

Case 20.—Abscess of the liver opening into the peritoneum—Increased size of the liver—Jaundice—Pain in the right shoulder—Chronic gastritis at the onset.

A tailor, fifty years of age, who had had repeated attacks of syphilis, which were treated with mercury given internally, and in the form of friction, since his forty-ninth year, after a syphilitic affection, for which he had taken sarsaparilla and Van Swieten's liquor, began to complain of occasional pains in the epigastrium. In their abrupt appearance as well as in their sudden cessation, in their nature and intensity also, they bore considerable resemblance to what is commonly called *cramp of the stomach*. During the intermission the appetite was preserved, and the health seemed to be very good. By degrees, however, he lost flesh and strength ; these gastric pains, which were temporary, but very acute, were succeeded by a dull pain, or rather by an habitual sensation of weight ; the appetite became irregular, and was then lost altogether. Such were the symptoms which existed for eighteen months ; the patient still attended to his usual business. At the end of this time the conjunctivæ and skin began to present a yellow tint, which became more and more marked, without any pain being felt in the region of the liver. But some time after the appearance of the jaundice a troublesome and continual pain was felt towards the right shoulder ; it continued to be felt more or less from that time.

When we saw the patient all the cutaneous surface was of a well-marked yellow tint. The pain in the right shoulder was still felt. In the right hypochondrium the liver was felt, which descended three fingers' breadth below the edge of the ribs : it was pressed without seeming to be painful. The affection of the stomach was characterised by a total distaste for every kind of food, by an habitual sensation of weight in the epigastrium, vomiting at intervals, a sensation of burning heat occasionally felt along the œsophagus, which seemed to commence at the cardiac orifice. The tongue was habitually covered with a whitish coat, without any redness of its edges ; the stools were scanty. There was some fever every night.

One day very acute pains were felt in the right hypochondrium, and the day all over the entire abdomen. At the same time there was vomiting, tension of the abdomen, which could not be pressed in any part without exasperating the pain ; he could lie only on his back. The pulse was weak and irregular ; the skin became cold ; and death supervened three days after the commencement of these pains.

Post-mortem. — Sero-purulent effusion into the peritoneum ; liver hypertrophied. On raising it we observed a little to the right of the gall-bladder, on the lower surface of its right lobe, an opening in its substance, through which the index finger might be readily introduced : this opening led into a cavity full of pus, the parietes of which were formed of the parenchyma of the liver ; inferiorly this parenchyma formed but a very thin floor, which separated the cavity full of pus in the liver from the peritoneal cavity. It was this thin lamina of the hepatic tissue which gave way, and allowed the pus formed in the liver to escape into the peritoneum, whence arose acute inflammation of this membrane.

There were two or three red spots on the gastric mucous membrane, over the great cul-de-sac, each being about the size of a two-franc piece. In some parts it was so soft as to resemble liquid mucus deposited on the subjacent cellular tissue. In the pyloric portion, on the contrary, the mucous membrane of the stomach was thickened, hypertrophied, and of a brownish colour : this same colour was found in the two first portions of the duodenum.

The stomach was the first organ which appeared to be affected in this individual. It is impossible to say at what period the affection of the liver commenced ; it is probable that the inflammation of the stomach extended gradually to the biliary apparatus ; we were not apprised of the existence of any affection

of the latter till the jaundice appeared, which, instead of being merely of a temporary duration, as in the subject of the preceding case, continued, on the contrary, till the death of the patient. Except, however, a slight increase in the size of the liver, which was observed here, and not in the preceding case, the state of this organ was the same in both. In both the abscess was situate much nearer the concave than the convex surface of the organ; only in the preceding case it occupied the left lobe, and in this case the right lobe.

This is the first case in which we find, among the morbid phenomena which manifest themselves during the progress of a disease of the liver, the pain in the right shoulder. Neither has M. Louis met it in any of the five cases of abscess detailed by him. From this it must certainly be inferred that this pain is much less frequently met in the different affections of the liver than it has been stated.

The different cases of abscess of the liver which have been now cited have pointed out to us the principal varieties which these abscesses may present; 1st, in the pathological anatomy; 2dly, in their causes; 3dly, in their complications; 4thly, in their progress; 5thly, in their symptoms; 6thly, in their modes of termination. We have spoken elsewhere of those purulent collections sometimes found in the hepatic parenchyma, and which seem to have been deposited rather than formed therein. These purulent collections usually coincide with other collections found in different organs, and in the great majority of cases they appear to be connected with phlebitis.

We shall now cite some cases wherein, instead of pus, another species of accidental production was formed in the hepatic parenchyma, the two principal varieties of which have been designated scirrhous and encephaloid tissue. Having already expressed our opinion on the origin and nature of these productions, and as we propose to recur to them more in detail in another work (*Pathological Anotomy*), we shall not here deviate from the language generally received; we shall retain provisionally terms which seem to us neither correct nor sufficient, the use of which, however, custom has consecrated; and, supposing the anatomical nature of cancer of the liver already known, we shall in the following cases endeavour to point out its symptoms and progress. These cases will show how variable are the signs which indicate cancerous affections of the liver. Thus, with respect to the symptoms, there are many shades between such of those affections wherein there is at one and the same time a tumour in the right hypochondrium, pain in this same part, jaundice, ascites, anasarca, and those where none of these morbid phenomena are observed, and where the *post-mortem* examination alone discovers the disease of the liver. With respect to their course, there are some of these affections which really resemble acute diseases, which are developed, and terminate fatally in a very short space of time: there are others which continue for a great number of years, without producing any very serious symptoms for a considerable time. We shall also see that, as well as the other diseases of the liver already mentioned, cancer of this organ is most frequently accompanied during life by gastro-intestinal symptoms; and that frequently, though not always, traces of chronic inflammation are found in the digestive tube, and particularly in the stomach. We shall now cite a case of cancer of the liver remarkable for its rapid course.

SECTION II.

CASES OF CANCER OF THE LIVER.

Case 21.—Cancerous tumour of the liver and gastro-hepatic epiploon, which terminated in death three weeks after the first appearance of the symptoms—Jaundice—Healthy state of the digestive tube.

A foreign merchant, about forty-five years of age, had been several times

attacked with intermittent fevers; however, he enjoyed good health since the fortieth year of his age. During the month of April he felt some slight pains immediately beneath the cartilaginous edge of the false ribs of the right side; towards the end of the month jaundice appeared; he then entered the Charité. When we saw him he had no fever; his appetite was very good; the digestive functions seemed to be intact, only the stools were devoid of the natural colour; the urine was of an orange-red tint; the right hypochondrium was soft and free from pain. (Whey, with acetate of potash; pills of calomel and soap.)

May 2d.—The pains in the right hypochondrium reappeared; on the following days they continued, fever set in, the hypochondrium became tense, as if it were occupied by the tumefied liver. (Leeches over the hypochondrium.)

May 9th.—We began to feel, immediately beneath the edge of the ribs, to the right of the epigastrium, a round immoveable tumour, which was very painful on pressure. (Narcotic cataplasms.)

From the 9th to the 15th the tumour became very large; it was now visible, and beside it several other knobby, uneven, and painful tumours soon appeared.

From the 15th to the 20th, these tumours extended behind the cartilages of the ribs, and raised them considerably; at the same time the patient began to vomit his drinks, three or four hours after taking them; the fever was continued with a violent exacerbation every evening, during which the pains of the hypochondrium became very acute; the patient wasted away with frightful rapidity. He died on the 21st.

The liver was large, and passed the breadth of four fingers beyond the edge of the ribs. From its convex surface several tumours projected, formed of a mixture of accidental productions, usually designated by the name of scirrhous, encephaloid, and tuberculous tissues. These tumours extended a considerable way into the substance of the viscus. Between them the tissue of the liver did not appear changed. Similar tumours surrounded and compressed the ductus hepaticus and choledochus, as well as the pyloric extremity of the stomach.

It is possible that the tumours of the liver and gastro-hepatic epiploon now described had existed for several years in this individual, and that their first origin was connected with the repeated intermittent fevers to which he had been subject. The existence of such tumours, still small, few in number, and in a state of crudity, is not incompatible with a tolerably good state of health. But what we wish principally to point out here is, the extreme rapidity of their increase, and the rapidly fatal symptoms to which this rapid increase gave rise. The febrile disturbance was here similar to that which accompanies acute inflammation of the digestive tube; the severity of the pain was directly proportioned to the acute development of the cancer. It was also remarkable how rapidly the patient wasted away. In this rapid and very great alteration of nutrition, how very much must not the blood and nervous system also have been modified! Thence probably the extinction of life.

This case may be compared to those cited in a preceding part of this work, which refer to the acute development of tubercles within the pulmonary parenchyma.

We shall not omit to notice here the very healthy state of the tissue of the liver around the cancerous masses. Is it not, however, under such circumstances that we should have found traces of inflammation?

We submit this fact to the consideration of those who refer the cause of every accidental production to this latter circumstance.

The jaundice, which existed during the entire time the patient stayed in the hospital, might be connected with the alteration of the hepatic parenchyma; but, independently of that, we here find another circumstance to account for it, a cause of obstruction altogether mechanical in the tumours, the existence of

which was proved by the *post-mortem* examination, around the ductus hepaticus, and choledochus ; in this case, also, the nature of the stools announced before the patient's death that the bile no longer entered the duodenum.

The vomiting, which came on towards the close, was not accounted for by a morbid state of the digestive passages ; the stomach, duodenum, and the remainder of the digestive tube, were all found exempt from every species of lesion. Might not this vomiting be referred to the compression on the pylorus by the tumours which surrounded it? This fact further proves that there may be fever and the patient may die, without there being any gastro-intestinal inflammation.

Case 22.—Cancerous tumours in the liver, and also in the stomach, in the lymphatic glands in front of the spine, and around the uterus—Tumour and pain in the right hypochondrium—Jaundice—Ascites.

A washerwoman fifty-three years of age had been ill for about seven months, when she entered the Charité. She had at first all the symptoms of acute rheumatism ; pain in the lumbar region ; painful swelling of several joints ; fever. She then entered the Hotel Dieu, where she was bled several times. When she left it (about three weeks after her admission) she was free from the pains of the joints and those of the lumbar region. But presently new symptoms supervened ; she began to feel a dull pain on the level of the last ribs of the right side ; at the same time the digestive functions, which till then were good, became deranged ; the mouth was constantly dry, and often bitter ; immediately after taking food she was troubled with acid eructations ; her food was from time to time vomited. No pain was felt in the epigastrium. These different symptoms appeared and continued during the six months preceding her admission into the Charité. When we saw her, her state was as follows : —

Emaciation was considerable : the conjunctivæ were yellow, as well as the entire skin. This jaundice had been in existence only for the last six weeks. Evident fluctuation in the abdomen ; she stated that her abdomen began to swell nearly at the same time that she became yellow ; the extremities had never been infiltrated. The right hypochondrium and right part of the epigastrium were occupied by a tumour, the form of which we could not ascertain satisfactorily, nor could we circumscribe its limits in consequence of the fluid effused into the peritoneum, some of which was interposed between the tumour and the abdominal parietes. This tumour was in other respects very distinct ; the patient felt rather acute pains in it, but only at intervals ; these pains, however, did not come on in a lancinating form. Pressure was painful over all the right hypochondrium ; everywhere else the abdomen was free from pain. The tongue was covered with a thick yellowish coat. There was complete loss of appetite for the last five months. The mouth was usually dry, without there being much thirst ; the introduction of food, and even of drink, into the stomach, was followed by a sensation of weight in the epigastrium. This sensation was changed into that of a burning heat when the patient drank merely a single spoonful of wine. Vomiting had not now occurred for a considerable time ; but she often voided, as if by regurgitation, a certain quantity of what she called glairy mucus. There was usually obstinate constipation. The urine was a mahogany-red colour, small in quantity, and was scalding hot when being passed. Pulse not frequent, remarkably small ; skin dry, and not hot ; but every evening, for the last two or three months, the patient felt herself burning hot.

She died six days after her admission. During this short space of time all the drinks which she took were rejected by vomiting ; she had frequent fainting fits ; the two thighs were infiltrated a little ; the urine presented a very copious

rose-coloured deposit; the pulse gradually ceased to be felt; after her last effort to vomit she fainted, and expired.

Post-mortem. The liver passed several fingers' breadth beyond the edge of the ribs. It was knobby, marked with white irregular spots, in the centre of several of which there was a depression. These spots corresponded to so many cancerous masses which existed in a great number within the liver. Three substances, of different appearances, formed them: one of a yellowish-white colour, and friable; the other greyish; the third of a dull white, traversed by several reddish lines. Around these morbid products, to the extent of some lines, the tissue of the liver was softer, more friable, and redder than elsewhere.

The bile ducts, at their exit from the liver, were surrounded by large cancerous masses, which might contribute to obliterate their cavity.

Stomach. Not far from the pylorus, which was free, the mucous membrane was raised by an irregularly rounded tumour, the size of a large chestnut, formed of a tissue of a dull white colour; beneath it the muscular membrane was healthy. The portion of mucous membrane covering it closely adhered to it; it was manifestly thickened, and of a slate colour. The stomach was filled with a matter resembling soot.

In front of the vertebral column other cancerous masses were observed, by several of which the aorta was raised.

Five or six small tumours, each the size of a nut, consisting of a dull white tissue, and without any appearance of fibres, were found between the proper tissue of the body of the uterus and the peritoneum covering it.

The progress of this cancer of the liver was also rather rapid; the patient died six months after the appearance of the first symptoms which indicated the existence of any affection of the liver and stomach. It would be difficult to say which of the two affections preceded the other: it would appear that they commenced nearly at the same time. The disease of the liver here is extremely well marked; there was pain and swelling of the right hypochondrium, jaundice, and ascites; pain was one of the first symptoms which appeared. It was never as acute as in the subject of the preceding case; nor was it lancinating, as all the pains of cancerous affections are stated to be. With respect to the jaundice we here again find it to coincide with the existence of tumours which, developed around the bile ducts, might compress or irritate them.

We should not forget to remark that in this individual, wherever the function of nutrition deviated from its normal type, accidental products of the same nature were developed. Thus nothing could be more like the matter found in the liver, than that which was deposited in the substance of the parietes of the stomach, around the body of the uterus, and before the vertebral column; this was principally remarked around the uterus, where fibrous tumours are generally found.

Case 23.—Cancer of the liver—Chronic gastro-duodenitis—Tumour in the right hypochondrium—Jaundice.

A public writer, thirty-seven years of age, enjoyed a good state of health, when one day, after having been exposed to a current of cold air, whilst he was in a state of perspiration, he was seized with the different symptoms of cholera morbus; profuse evacuations, upwards and downwards, sudden prostration, etc. These symptoms disappeared after a few days; but from this moment he felt a difficulty in digesting his food hitherto unknown to him; the presence of food excited in him a feeling of fulness and abdominal tension; he had sometimes also some diarrhœa. Three years passed on in this way, after which he became yellow. He then entered the Charité.

His emaciation was now considerable; all his skin was of a jaundiced colour, and was so for the last seven or eight months. We felt very distinctly in the right hypochondrium a body with an uneven surface, which terminated in a thin edge a little above the level of the umbilicus, and which, on the left, extended into the epigastrium a little beyond the xiphoid cartilage. The patient did not perceive the presence of this tumour; he had never felt the least pain in it, nor did pressure produce any in it. One could hardly hesitate to admit that this tumour was the liver increased in size; but what was the nature of the affection? was it merely hypertrophied, indurated, or softened? were accidental productions developed in it? This it was impossible to determine. There neither was at present, nor had there been, any dropsy. For a long time back the patient had lost all appetite; when he took the least aliment, solid or liquid into his stomach, he experienced a general indisposition, and at the same time a feeling of swelling at the epigastrium, but never any real pain. A great quantity of gas was voided by the mouth; he had scarcely vomited two or three times when his digestion began to be deranged. He complained of often feeling pulsations of the heart, sometimes preceded by rather an acute pain in the præcordial region. He also experienced from time to time very distressing headachs, disturbances of vision, formication in the hands and feet, temporary chronic contractions of the different muscles. He said he had no longer any physical or moral strength, and that he was continually exhausted, as a person who had exercised himself beyond his strength. For several months back the frequent diarrhœas to which he was subject were succeeded by an obstinate constipation; the latter set in nearly at the same time that the jaundice appeared. The colour of the stools was not ascertained, nor that of the urine. The pulse was uniformly frequent; the palm of the hands burning hot; skin always dry; and the patient complained of a very troublesome itching.

Vichy water was given him, which had no other effect than that of lighting up fever, and of exciting pains in the epigastrium, which the patient had not previously felt. But this ceased as soon as the use of the mineral water was given up. This patient remained for about two months in the hospital, gradually becoming weaker. On a sudden, symptoms of pleuro-pneumonia of the right side set in, which were treated by revulsives applied to the chest and lower extremities; this proved unavailing, and he died.

Post-mortem.—Greenish yellow tint of the entire skin; some red spots resembling ecchymosis on the legs. Extreme marasmus.

The liver formed in the abdomen a large tumour, which occupied the right hypochondrium, the epigastrium, left hypochondrium, and descended on a line with the umbilicus. It presented a smooth and even surface. Externally it was remarkable for its brownish-green colour, and presented no other alteration. But we had scarcely made an incision into it when we found in it a number of whitish masses, hard or soft, reduced to a pap; several streaked with reddish lines, which left between them certain areolæ varying in form and size, others having blood effused into the midst of them. There was bile in the gall-bladder.

The internal surface of the stomach presented through its entire extent a slate colour, the seat of which was in the mucous membrane; this membrane was thickened, indurated, uneven at its surface. The same colour was continued into the duodenum, the follicles of which were moreover observed to be very much enlarged. Over the rest of the digestive tube nothing was observed but large oval patches, with black points, towards the termination of the ileum (Peyer's glands), and a brownish colour of the cæcum.

The mesenteric glands, principally those corresponding to the cæcum, were large, and of a pale red colour internally.

False membranes of recent formation connected a considerable portion of the

pleuræ costalis and pulmonalis of the right side. The lower lobe of the lung of this side was in a state of red hepatisation. No lesion of the heart or of its appendages. In the encephalon considerable serous infiltration of the subarachnoid cellular tissue of the convexity of the hemispheres.

We here find one symptom less than in the preceding cases, namely, the pain. This is a well-marked case, which proves that cancerous masses may be developed in great numbers in the liver, may exist there, both in their crude and softened state, without this organ becoming the seat of any pain. If we inquire why in this case the affection of the liver was completely free from pain, whilst in those already cited it was accompanied with pains more or less acute, of a lancinating character or otherwise, we shall not find any reason for this difference either in the number or texture of the accidental productions, or in the state of the tissue of the liver around them. We may remark here, however, that none of these productions was visible externally; that they were all deep seated in the organ, and remote from the peritoneum.

The onset of the disease is another remarkable circumstance in this case. It was after cholera morbus that different disturbances of digestion appeared, which were proved by the *post-mortem* to be the result of a chronic gastro-enterite. At the time of the patient's death there had been no diarrhœa for a long time, and the symptoms indicated that intestinal inflammation, properly so called, no longer existed. We should consider also the species of lesion found in the intestine; mere enlargement of Peyer's glands, and brown colouring of the cæcum. These two lesions remained as traces of an inflammation which no longer existed; there was besides a state of hypertrophy of the glands of the mesentery, which probably was also the result of the previous enterite.

With respect to the stomach, the chronic inflammation having extended to the duodenum, of which it was the seat, indicated its existence by two orders of symptoms: the one, local, were those to which we have already several times called attention; the epigastric pain existed but temporarily, and in a form in some measure accidental under the influence of a stimulating treatment. Other symptoms were general, and the result of irritations sympathetic of the affection of the stomach: we may remark principally that general indisposition, that marked sinking (*brisement*) of which the patient complained, the formication, headach, muscular contractions, the beating of the heart which he experienced, and the momentary pains which he felt in different parts of the body. How many times have such symptoms been called nervous, because the local lesion of which they were the sympathetic effect was indicated by symptoms so little marked that it easily escaped investigation?

In this patient also the disease of the liver appears to have been consecutive on the gastro-intestinal affection; the jaundice came on a considerable time after the digestive functions began to be deranged. There was not here, any more than in the preceding cases, any obstacle to the course of the bile. It may further be remarked that in this case the disease of the liver was found to be connected with a chronic duodenitis; at least we are disposed to consider as such, or at least as vestiges of it, the slate colour of the mucous membrane of this intestine, and the hypertrophy of its follicles.

Case 24.—Cancerous masses developed in the liver—Diminution of its size—Chronic gastritis (Ulceration, with scirrhous induration of the submucous tissues)—Jaundice—Ascites—Absence of pain.

A man, sixty-six years of age, who had been a soldier for 18 years, had had an intermittent fever of a quartan type, which lasted for nine months. However, after recovering from this fever, he continued to enjoy very good health. About a year before his entering the Charité he got a fall, in which the epigas-

trium was very much contused by a hard body. A little time after this fall he had profuse hematemesis, and since then, without ever experiencing any epigastric pain, he lost appetite, had frequent purging, and became yellow. About two months before entering the hospital the abdomen began to swell, without pain having ever been felt in any part of that cavity.

State of the patient at the time of his admission :—Jaundice over the entire body well marked ; emaciation ; evident fluctuation in the abdomen, which was very much enlarged, free from pain in every part, nor could any tumour be detected in it. Tongue white, without any redness at apex or edges ; no thirst ; loss of appetite ; no vomiting at any period ; three or four liquid stools in the twenty-four hours, for several months back. Fæces were yellow. Pulse a little frequent, without any heat of skin. Urine reddish, depositing a sediment. (Fumigation with juniper baths ; frictions on the extremities with camphorated alcohol and tincture of cantharides ; diuretic drinks.) The patient gradually became weaker, and died. Towards the termination the diarrhœa increased very much, and fever set in. No pain had been felt in any part of the abdomen. The ascites went on increasing. The lower extremities became a little infiltrated. A little before death the patient, who previously had no cough, expectorated a considerable quantity of greenish puriform sputa.

Post-mortem.—Skin yellow ; effusion of a great quantity of fluid into the peritoneum, which, however, presented no trace of inflammation, either recent or of long standing.

The liver occupied but a small space behind the last ribs of the right side : its size was evidently less than natural ; its tissue was of a greenish-brown colour. In its interior we found five or six whitish masses, each nearly the size of a large nut; four of them were hard and streaked with some reddish lines, or dotted with points of the same colour ; two others of them were softened, and in one of the latter there was a little blood mixed with the detritus of the mass. None of them projected, nor were they visible on the exterior of the liver.

There was a large ulcer on the inner surface of the stomach, towards the great cul-de-sac, as large as a five-franc piece. Its edges were formed of tumefied mucous membrane. At the bottom of it the submucous cellular tissue was at first found changed into a substance of a dull white colour, several lines in thickness. Beneath it was the muscular membrane, which every where presented the same appearance. In several points, and principally towards the circumference of the ulcer, this membrane was thicker than outside the ulcer. There it was divided into fasciculi, or lobules, by white fibro-cellular intersections, which on the one hand were connected with the submucous cellular tissue, and on the other hand with the subperitoneal cellular tissue. Near the centre of the ulceration the muscular membrane was not so perceptible ; it presented itself merely in the form of thinly-scattered fasciculi, separated by considerable intervals occupied solely by masses of white cellular tissue. These masses seemed to be merely an enlargement of the white striæ of the circumference. As we have explained it elsewhere, according as the cellular tissue forming these lines and these masses became developed, the muscular tunic, being compressed, partly disappeared. In other parts, where the homogeneous white tissue became more predominant, the muscular tunic actually existed merely in shreds, in isolated points ; everywhere else no trace of them was perceived. Some lymphatic glands enlarged, and, after undergoing the white (scirrhous) induration, were found beneath the ulceration just described, between the stomach and spleen, and closely united these two organs together. The mucous membrane of the termination of the ileum presented a bright red injection ; that of the large intestine was thickened, and of a brownish-grey colour. The inner surface of the aorta, of the costal cartilages and dura mater, presented a well-marked yellow colour.

It was after external violence that the affection of the stomach appeared to have come on in this individual; and, consecutively to this, the disease of the liver. The disease commenced by a most alarming symptom, hematemesis; and whether this was the result of a rupture of a large vessel, occasioned by the fall on the epigastrium, or whether it depended on mere exhalation of the congested capillaries, this vomiting was followed by disorganisation of both the stomach and liver, which was not indicated by any pain. It was only towards the termination of the disease, when the power of nutrition had been a considerable time modified, that jaundice and ascites came on, the only symptoms of liver disease. Besides the cancerous masses, we find, in order to account for the ascites, that diminution in the size of the liver, which in some of the preceding cases we have frequently seen, coincide with collections of serum in the peritoneum. With respect to the jaundice, it was not accounted for in this case by the existence of any obstacle in the bile ducts; and further, we are certain from the nature of the stools that the bile entered the duodenum during life.

Nor should we forget to remark how severe the alteration of the stomach was, and how little marked were the symptoms which announced it. Distaste for food, and nothing more!

Some lymphatic glands were enlarged here in the vicinity of the ulceration of the stomach, as they are seen frequently enlarged in the vicinity of acute or chronic inflammations of the intestine.

The increase of the diarrhœa and the fever during the last few days seem to us to be owing to the red injection of the termination of the ileum; whilst the state of the large intestine accounts for the old purging. Thus, worn out by a chronic disease, this individual, like so many others, died of acute inflammation.

Case 25.—Cancer of the liver; similar degeneration of the stomach, pancreas, and epiploon—Indolent tumour in the right hypochondrium—Derangement of the digestive functions—Absence of jaundice and dropsy.

A woman, forty-three years of age, enjoyed good health up to the age of forty. She then ceased to menstruate, and nearly at the same time her digestion became deranged, without her experiencing any real pain in the epigastrium. She had no appetite; the introduction into the stomach of the little food which she took was followed by general indisposition, and a feeling of fulness in the abdomen. She had frequent acid eructations. In this first period of her disease she took some rhubarb, then some quinquina; no improvement followed this: she then took some quinquina in decoction, without any benefit. She was then attacked with vomiting, which afterwards came on at intervals more or less remote. The matters vomited were of three kinds: sometimes it was merely the food which she had taken; sometimes a great quantity of mucus; sometimes again a brownish liquid, like coffee-grounds.

This gastric affection was of three years' standing when we first saw her; her emaciation and debility were extreme: the face had a marked straw-coloured tint; there was no trace of jaundice in any other part. The liver evidently extended two or three fingers' breadth below the ribs in the two hypochondria and epigastrium; the sharp edge of it was readily traced. The patient felt no pain in any point of the chest or abdomen, nor did pressure occasion any. The tongue was merely pale; frequent acid eructations took place, and almost every day for some time she vomited the matters mentioned above; the stools were scanty, brownish, and hard; pulse small and frequent; skin hot and dry. (Demulcent drinks; milk and water.)

A few days after the patient's admission *two blisters were applied to the legs*;

they occasioned great irritation of the nervous system. On the day after she was in a state of great agitation; the pain she felt in the parts to which the blisters had been applied forced the most piercing cries from her; the pulse, which was small and contracted, had become very frequent; the blisters were covered with an emollient cataplasm. In the course of the day this nervous exaltation, so very remarkable in the exhausted state of the patient, was succeeded by extreme sinking, both physical and moral. In the evening the blistered surface was covered with a black crust; death took place the next morning.

Post-mortem. Great emaciation. No trace of jaundice, nor of dropsy.

Nothing remarkable in the brain and its membranes. Ventricles empty.

The liver, as we had ascertained during life, extended as far as the left hypochondrium, and went three fingers' breadth beyond the edge of the ribs. In the right flank it touched the crest of the ileum. The stomach was completely covered by it. Externally it was of a reddish colour, streaked in several places by a dirty white tint. Where this latter tint existed the finger felt a manifest fluctuation. It corresponded accordingly with large cavities filled with a sort of pap, the colour of which varied from a dirty grey to a red. In whatever part an incision was made into the liver, similar cavities were entered. Several contained a more solid matter, which again might be readily crumbled by slight pressure, and which was then changed into a pap similar to that contained in the other cavities. Again in some few places we found tumours in the tissue of the liver, the size of a large nut, formed of a dull which substance, streaked with reddish lines, some points of which were changed into a pulpy liquid of a dirty reddish-grey colour. The gall-bladder was distended with a very black and very thick bile.

The liver having been removed, another large tumour was discovered, limited above by the stomach inferiorly, and on both sides by the three portions of the duodenum. It consisted of apparently inorganic matter, of a dull white colour, hard and creaking under a knife. On its left side nothing was found but a very small vestige of the pancreas. On including this gland and the tumour in one and the same cut, the healthy tissue of the pancreas was observed to disappear all at once, and to be succeeded by the tissue of the tumour. On the inner surface of the latter, however, some scattered granulations of the gland were observed.

The tumour just described was continued with several others of the same nature, which surrounded the pyloric extremity of the stomach and the commencement of the duodenum.

To the extent of five or six fingers' breadth on this side of the pylorus there was nothing found in the place of the different coats which constitute the parietes of the stomach but a homogeneous white and hard tissue. Over this extent the mucous membrane was destroyed; at the bottom of the ulcer arising from its destruction there was a whitish pulpy matter, one or two lines thick. Lastly, in the substance of the great epiploon, immediately below the transverse colon, a tumour was developed, as large as an ostrich's egg, formed, as that circumscribed by the duodenum, of a homogeneous, hard, and dull white substance.

Is it not a very remarkable circumstance in this case that, notwithstanding the great number of accidental productions called cancerous, developed in different parts of the abdomen, no pain was ever felt? The enormous tumour formed by the liver was uniformly free from pain, and yet the cancerous masses which had in a great measure taken the place of its tissue were completely softened; blood was mixed with them, and, what is more, they were in almost immediate contact with the peritoneum investing the circumference of the liver.

Neither do we find in this case any trace of jaundice, but only that straw-colour tint of the face which accompanies some cancerous affections, and which has more than once served to distinguish, during life, simple chronic inflammation of a tissue from its organic degeneration.

The degeneration of the pancreas, of which we had here an instance, is a rare fact in pathological anatomy. Most frequently it is found intact amidst the most serious disorganisations of the stomach and the other surrounding tissues. Would it not seem that in this case it was principally the cellular tissue, interposed between the granulations of the pancreas, which was altered and indurated; and that, according as this cellular tissue was developed, the granulations were atrophied, and ultimately disappeared? Several times in the salivary glands, and once in the lachrymal gland, have we been able to trace the process of disorganisation now alluded to. The granulations of those glands were still distinct, but merely scattered, and separated from each other by thickened and indurated cellular tissue. We should not forget to remark the mischievous effects produced in this individual by the application of blisters to the legs. What more striking instance could be given of individual predisposition! Thus, in certain patients, the slightest irritant introduced into the digestive passages will occasion the most alarming symptoms; whilst in others the most violent drastics will be entirely ineffectual.

Case 26.—Cancer of the liver and stomach—Ascites, without any other symptom of liver disease.

A man, sixty-five years of age, who had habitual purging for the last year (three or four liquid stools in twenty-four hours, preceded by colicky pains), felt some pains in the epigastrium. During the last two months he had sour eructations after eating, and sometimes had a disposition to vomit. Since the last month, ascites, and some œdema of the lower extremities: no pain felt in any other part of the abdomen; the right hypochondrium was never painful. This person became more and more exhausted, and died.

Post-mortem. Considerable effusion of limpid serum into the peritoneum; liver of the ordinary size, concealed behind the ribs, seemingly healthy on the outside, but presenting internally a great number of cancerous masses, several of which were softened. These masses occupied nearly three fourths of the organ, the healthy tissue of which was nearly reduced to a very small size. The internal surface of the stomach presented, towards the middle of the small curvature, an ulcer broader than a five-franc piece, in the bottom of and around which the sub-mucous cellular tissue was found considerably thickened, scirrhous, and the fleshy tunic hypertrophied. In the large intestine the mucous membrane was found to be pale, but very much softened. There was a little redness at the termination of the small intestine. The apex of both lungs was hard and black; in the midst of this indurated portion small grains of a stony consistence were found.

In this case there was neither tumour nor pain present or past, nor jaundice either at the time, or previously, to characterise the disease of the liver. The ascites, which one might readily see did not depend on an affection of the heart, and which did not appear to be attributable to an inflammation of the peritoneum, might incline one to think that there was disease of the liver; but, if from this ascites one would have wished to announce the nature of the disease with which the liver was affected, he would rather have diagnosed the existence of one of those hard, small, shrivelled livers, already spoken of, than that of a cancerous liver; for the latter produces ascites without any other symptom, much more rarely than the other lesion. Here again, as in most of our other cases, we remark the simultaneous existence of the affection of the liver and of the digestive tube; here also it is not the duodenum which we see to be specially affected.

SECTION III.

OBSERVATIONS ON HYDATIDS OF THE LIVER.

Case 27. — A chanter in a church, thirty-one years of age, had for several years indulged in alcoholic liquors to excess. Three years before his admission into the hospital he had small-pox; before this he had enjoyed uniform good health. For five months after convalescence from this he had purging, accompanied with slight abdominal pains. This, however, was soon removed by proper treatment. Some time after, he began to feel a dull pain towards the right hypochondrium; it was most severe during the night. This pain was not accompanied by any very bad symptom for about two years. At the end of this time he began to lose flesh and strength. For six months he wasted away in this manner, without the appearance of any other local symptom; only, from time to time, he had returns of the diarrhœa. Appetite good; to recruit his strength, he still indulged in wine and spirituous liquors. Six months before coming to the hospital he perceived that he was yellow. The jaundice which was at first slight, and limited to the face, afterwards became general and very marked. When we saw him first, his case was as follows:

His spirits were very good, and he was very confident of recovery: still he was very much emaciated; the greenish hue of his skin indicated a lesion of the liver. On a line with the last ribs on the right side, and in the hypochondrium, there was a sort of weight, an unpleasant sensation rather than a real pain. We could not discover any tumour by manual examination; everywhere else the abdomen was soft and free from pain. Appetite still good. For several months he had been constipated; no trace of dropsy; pulse not frequent nor skin hot; urine red and scanty. After being a month in the hospital, without presenting any change, his respiration became suddenly embarrassed without any previous stitch in the side, or any characteristic sputa; auscultation first detected a crepitous râle, and afterwards well-marked bronchial respiration in the space included between the right clavicle and the mamma of the same side, and posteriorly in the supra and infraspinous fossæ. Dull sound over the same space; at the same time features became very much changed; pulse thready; erysipelas of the face accompanied with increased prostration. He died on the sixth day after the appearance of the dyspnœa.

Post-mortem. Great emaciation; abdominal parietes retracted; marked greenish-yellow tinge of the skin; no trace of dropsy. The liver viewed externally, was healthy; it was of its natural size and colour; but scarcely had the scalpel entered it to the depth of eight or ten lines, when, immediately to the right of the great suspensory ligament, a liquid was observed to gush forth with violence, as clear as crystal, and we found that it came from a pouch large enough to hold an orange, and which was filled with seven or eight acephalocysts, one of which was much larger than the others. This large hydatid was hollow, and it was from it that the clear liquid above mentioned seemed to come; that surrounding the hydatids, and contained in the pouch itself, was yellowish and turbid. The parietes of this pouch were formed of a fibrous dense, resisting membrane, several lines in thickness, in contact at its external surface with the parenchyma of the liver, to which it was united by some cellulo-vascular filaments. Smooth on its inner surface, where it presented a serous organisation, it was bathed in the fluids in which hydatids float. The spleen, healthy on the outside, when cut into, allowed a fluid to escape similar to that which came from the liver. This liquid came from a large acephalocyst, which contained several others, and which was contained in a cavity in the splenic parenchyma; this cavity differed from that found in the liver in its parietes being lined only with a very thin cellular membrane. In the lower fifth of the small intestine Peyer's glands were

found larger than usual, uneven on the surface, some of a greyish white, and others blackish. In this same portion of the intestine isolated follicles were found very apparent, presenting a central black point, and a circle of the same colour on their circumference. The inner surface of the cæcum, and of a portion of the colon, presented a slate-coloured tint. Grey hepatisation of the upper lobe of the right lung. Some whitish flocculi in the pleura of the same side, with redness of this membrane.

One fact should strike us in the case now read; the impossibility of detecting, by any distinctive sign during life, the species of change which the liver had undergone. What do we find, in fact, as a symptom of the disease of the liver? Nothing else but what the preceding cases have shown to us, where, notwithstanding the organic lesion was very different, these symptoms may be reduced to an obscure pain, with jaundice. Thus, then, whether there be simple sanguineous congestion of the liver, hypertrophy or atrophy, induration or softening of its parenchyma, formation of abscess, or developmont of cancerous tumours in its interior, production of hydatids, etc., symptoms sometimes different, but oftentimes identical, are the result of these infinitely varying lesions. No doubt it would be easier and more convenient to the observer to be able to assign to each of these lesions a particular group of symptoms; to say, for instance, that lancinating pains uniformly characterise cancer of the liver, that hydatids are always free from pain, etc.; this is, to be sure, most generally the case; but, on the other hand, there are cancers of the liver unattended with pain, and we see hydatids accompanied with pains sometimes very acute in the different stages of their existence. The knowledge of the exceptionable cases is of great importance to the practitioner for the certainty of his diagnosis.

Another circumstance of this case, well worthy of remark, is the intestinal inflammation which here preceded the development of hydatids in the liver, as it very frequently precedes the development of an ordinary hepatitis, whether acute or chronic. On this point we may refer to the cases already cited elsewhere, and in which we have seen abscesses of the liver, hydatids of this organ, atrophy, and, in a word, cancerous degenerescences of its parenchyma, become developed under the influence of one and the same order of causes, namely, external violence.

Pain was for a long time the only phenomenon which indicated the existence of an affection of the liver; this pain, according to the patient's account, was more severe during the night; a fact which, added to several others, may serve to prove that this character of the pain, of increasing during the night, is not peculiar to syphilitic pains. We often observe it, for instance, in the cases of simple rheumatic pains. It is remarkable, moreover, that the same hydatids, the development of which, in the liver, had been accompanied with pain, did not occasion any in the spleen.

It would be very difficult to account for the production of the jaundice in this case, where the affection of the liver had left the greater part of the parenchyma perfectly healthy, and where the bile ducts were also exempt from any kind of lesion.

The individual was very much wasted, and was advancing slowly towards the grave, but nothing as yet indicated his approaching dissolution. The great functions, those whose integrity is most essential to the support of life, were not yet compromised. Thus the circulation was not disturbed, notwithstanding the twofold pathological process of which the liver and the spleen were the principal seats; the breathing remained free; the gastric digestion (a thing remarkable in a disease of such long continuance) was duly performed; there was a desire for food; chylification seemed to be performed; but the matter formed in the intestine, and absorbed, was to no purpose carried by the blood to

the different organs ; it did not assimilate with their tissue. In this case the normal performance of the general movement of nutrition was impeded by the abnormal movement of nutrition which took place in the liver and the spleen.

It was in this state of things that an acute inflammation attacked a portion of the pulmonary parenchyma. Here, as in many other cases where pneumonia complicates a chronic disease, the symptoms of the inflammation are far from being clearly marked. We observe no characteristic expectoration, no pain, though, after death, undoubted traces of inflammation have been found in the pleura : we merely observe severe dyspnœa ; and further, in this individual, who was already exhausted, the pulmonary inflammation occasioned a sudden sinking of the strength, an adynamic state, which the erysipelas of the face contributed to increase. These same symptoms are frequently occasioned under similar circumstances by a gastric or intestinal inflammation.

It must not be forgotten that, for a long time, the patient was subject to a diarrhœa, which was succeeded at intervals by constipation. The unusual development of Peyer's glands, hypertrophy of other separated follicles, with the appearance of a black colour at their centre and circumference, the slate-coloured tint of a part of the large intestine, are so many lesions which indicated an old inflammatory state of the digestive tube.

Case 28.—Hydatids of the liver developed without symptoms—Acute peritonitis consecutive on the opening of the hydatid pouch into the peritoneum.

A female, twenty-seven years old, entered the Charité with all the symptoms of pulmonary phthisis in an advanced stage : a cavity in the upper lobe of the lung ; diarrhœa, sweats, hectic fever, little appetite ; abdomen soft and free from pain in every part. This woman was declining slowly, when she was suddenly seized, without any known cause, with an acute abdominal pain, increased by the least pressure. For the four days following the commencement of this pain, the abdomen was observed to swell, always continuing very painful ; pulse became very frequent and weak. She died whilst vomiting some greenish bile.

Post-mortem. Turbid flocculent serum in the peritoneum ; intestinal convolutions united by white unorganised pseudo membranes of recent formation. On raising the liver we were not a little surprised to find, on the lower surface, a little to the right of the gall bladder, a solution of continuity, which might have admitted the end of three fingers joined together, and which led into a large cavity filled with burst hydatids. We then thought that the peritonitis was owing to the opening of the hydatid sac into the cavity of the serous membrane. Further examination detected shreds of hydatid membranes floating in the peritoneal serum. Traces of inflammation of the gastro-intestinal mucous membrane. Tubercles in different stages in the lungs.

This case is remarkable in two points of view : — First, it shows that hydatids may form in the liver, be developed there, and attain considerable size, without occasioning any symptoms ; and in this respect it will not be uninteresting to compare the preceding with the present case. In the preceding case we saw that these same hydatids had produced pain in the region of the liver, and also jaundice. With respect to the wasting of the patient, we cannot know, in this case, what share the affection of the liver had in its production in consequence of the accompanying disease of the lungs. Why, in one of these cases, was there pain and jaundice ? why, in the other, did none of these symptoms exist ? The organic changes were still the same. Secondly, this case, moreover, affords an instance of peritonitis produced by the opening of a cavity formed in the liver into the peritoneum, and by the serous membrane of the foreign bodies passing into this cavity.

Case 29.—Hydatids of the liver, with considerable development of this organ, and suppuration in the hydatid cavity—Tumour, unattended with pain or fever, for a long time; at a subsequent period, pain and fever.

A middle-aged man entered the Charité in the following state: — a considerable tumour occupied the right hypochondrium as well as the epigastrium; it advanced a little towards the left hypochondrium, and it descended as low as the umbilicus; superiorly it appeared to be continued, and lost behind the ribs. This tumour was smooth, presented no knobs; pressure, however severe, gave no pain. The patient told us that, for the last two years nearly, he had perceived the existence of this tumour, which was constantly free from pain, and had increased gradually, without the digestive functions having ever been seriously affected. But he gradually lost flesh and strength; pulse not frequent; skin dry, not hot; no jaundice at any time; tongue whitish; no thirst; appetite rather good; stools natural. From the situation of the tumour, its form, and its relations, we were disposed to think that it was nothing but the liver unusually enlarged. (Leeches were applied several times over the right hypochondrium, or to the anus; stimulating frictions to the skin were ordered; purgative pills given.) One day we were struck with the great alteration in the features of the face, which, having been of rather a good colour till then, became remarkably pale; pulse now frequent; a dry burning heat in the palms of the hands. For some days back the patient felt, in the right hypochondrium, which till then was free from pain, a somewhat acute pain, which, being worse at intervals, was then become lancinating. From the absence of any new symptoms, it was evident that the cause of the unfavourable change in the features of the face and of the fever depended on a new morbid process set up in the liver. Leeches were again applied over the hypochondrium, which was afterwards covered with emollient and narcotic cataplasms. The pain and fever were still worse on the next day. He was then bled from the arm; afterwards, leeches were again applied over the hypochondrium; blisters to the legs; frictions with tartar emetic, on the right hypochondrium. All the symptoms became worse; diarrhœa set in; and he died in a few days.

Post-mortem. The liver occupied all the space included between the edge of the false ribs of the right side superiorly, and a line supposed to be drawn from the superior crest of the ileum towards the umbilicus. Thus it was it, then, that constituted the tumour during life. In one point of its convex surface, towards the middle of its right lobe, it presented a manifest fluctuation. Where this did exist, there was found, instead of the parenchyma of the liver, a cavity which might have held two oranges, and which contained two distinct matters; first, white creamy pus, of good consistence and inodorous; secondly, in the midst of this pus hydatids, some of which were still entire, the greater part of which consisted of debris of membranes rolled on each other. Those which were entire presented this remarkable circumstance, that several points of their parietes were opaque, and of a milky-white colour. After this cavity had been emptied, its parietes were found to be lined merely with a layer of concrete pus, and beneath this layer was the parenchyma of the liver redder and more friable, to the extent of some lines around the cavity, than anywhere else. Towards the centre of the left lobe a second cavity was found full of hydatids still entire. The parietes of this cavity were lined with a real fibrous membrane, and around it no appreciable alteration was found of the hepatic parenchyma. White softening of the gastric mucous membrane towards the great cul-de-sac; red spots over the large intestine.

There are two periods to be distinguished in this case. In the first we perceive a considerable tumour in the right hypochondrium; and there is no other serious symptom, except the progressive emaciation and the gradual loss of strength. In the second period pain and fever set in, all the functions become

gradually deteriorated, and death succeeds to a diarrhœa. We think we may easily account for the symptoms of these two periods by the lesions found on the dead body. It seems probable that, in the period during which there was neither pain nor fever, the liver contained nothing but hydatids ; at a subsequent period pus came to be secreted around these entozoaires ; thence fever, pain, and that series of symptoms which generally accompany every suppuration. This is not the only case wherein we have observed divers new products become developed around hydatids, pus as well as tuberculous matter. We shall annex to this the history of another case recently communicated by Dr. Descieux. In this, as well as in that now cited, one and the same cavity contained pus and hydatids at one and the same time.

An inhabitant of Montfort-Lamaury laboured for more than twenty years under what are called obstructions ; seven years ago he passed hydatids by the anus ; he was very unhappy in his state. Three-fourths of the upper part of the abdomen were occupied by a knobby tumour, the seat of which could not readily be determined. About two months before this case was written the patient felt acute pains in the abdomen, and fever set in ; seven weeks after these symptoms appeared, one of the most prominent knobs of the tumour became fluctuating ; he experienced very acute pains in the part. An incision was made on the summit of the tumour ; this incision was made four fingers' breadth from the linea alba of the left side. A large quantity of pus gushed from it, and a brown liquid, similar to that which is sometimes met in ovarian cysts ; membranes also, several inches in length, escaped from it, of a yellowish colour, and altogether resembling the debris of hydatids ; they were soft and friable, and had lost their consistence. M. Descieux considered them to be dead hydatids. During the four following days, pus and some debris of hydatids flowed in abundance between the lips of the incision. At the time this case was written the discharge consisted merely of pus without any admixture of hydatids. The abdomen was soft and very little painful ; all the knobs disappeared ; the patient was still very weak, but not feverish ; the evacuations were free.

SECTION IV.

DISEASES OF THE EXCRETORY PASSAGES OF THE BILE.

The different tissues which enter into the composition of the parietes of the gall-bladder, as well as the ductus choledochus, cysticus and hepaticus, may be attacked, separately or simultaneously, with acute or chronic inflammation. This inflammation may be limited to a more or less circumscribed point of the gall-bladder or ducts ; it may also attack them through their entire extent. Sometimes, whether by mere anatomical inspection, or by the study of the symptoms, one is led to admit that inflammation of the passages for the excretion of bile is consecutive on an inflammation of the duodenum ; sometimes, on the contrary, there is nothing to prove this dependence ; there is nothing to prove that the inflammatory process which has attacked these passages of excretion is not primary. Is it not thus with external parts ? And if, for instance, observation teaches us that in a very great number of cases inflammation of the passages for the excretion of serum or saliva is consecutive on a urethritis or a stomatitis, are there not other cases also where either acute or chronic engorgement of the testicle, or an inflammation of Stheno's duct, or of the ducts which by their union form it, are seen to supervene, without there having been any previous inflammation of the urethra or of the cavity of the mouth ?

The changes of texture induced by inflammation in the passages for the excre-

tion of bile are numerous, and of several kinds. First, they may be limited to the mucous membrane, or extended to the subjacent tissues.

The mucous membrane may be ulcerated, as M. Louis has proved by several cases ; we have found it considerably tumefied, thickened, and hypertrophied, after different acute or chronic inflammations. If this increase in thickness exists only in the portion of membrane which lines the inner surface of the gall-bladder, no particular phenomenon results from it ; but the same cannot be said with respect to the ducts, whose mucous membrane cannot be tumefied without complete or partial, permanent or temporary, obliteration of these ducts.

The tissues subjacent to the mucous membrane may also undergo different species of change. In the gall-bladder we have several times found them infiltrated with serum, and once with purulent matter. In this same gall-bladder we have seen them sometimes softened, extensively ulcerated and perforated simultaneously with the mucous membrane, which occasioned an effusion of bile into the peritoneum ; sometimes very much thickened, indurated, and scirrhous ; at other times changed into fibrous or cartilaginous tissues, or studded with bony depositions ; on another occasion reddish fibres of a muscular appearance were observed on the parietes of the gall-bladder. In the ductus hepaticus, cysticus and choledochus, the submucous cellular tissue may also be either softened and destroyed simultaneously with the mucous membrane, occasioning perforation of some point of the parietes, or be thickened and indurated, and thus produce obliteration of these ducts in the same way as, in the canal of the urethra, certain indurations of the submucous cellular tissue frequently cause it to be very much diminished.

In some cases all trace is lost of the cavity either of the ductus hepaticus, cysticus or choledochus. In their stead nothing is found but a mere fibrous chord. The cavity of the gall-bladder may also be very much diminished, be even completely effaced, and, where it did exist, it sometimes happens that nothing is found but a small body, in which the cystic duct itself, also obliterated, terminates; it may disappear still more completely, and the depression in which it was lodged may be occupied by cellular tissue more or less condensed.

At other times, on the contrary, the cavity of the gall-bladder is found much larger than usual ; this appears to happen chiefly in cases where, there being an obstacle to the free passage of the bile into the ductus choledochus, this liquid flows back, and accumulates in the gall-bladder, from which it can no longer make its exit, so as to flow into the duodenum.

This same increase of size may also exist in portions even of the biliary ducts which are situate behind an obstacle. In one case, where a calculus closed up the duodenal orifice of the ductus choledochus, we found this duct so dilated through the remainder of its extent that its diameter equalled that of the vena portæ.

Every one knows that the materials of the bile may become solidified in the excretory passages, so as to form calculi, which vary very much in their chemical composition, in their form, colour, dimensions, number, seat, etc. We shall not here enter into the history of biliary calculi. We shall merely call the attention of chemists to a white calculus, composed merely of phosphate of lime found by us in a gall-bladder, which contained nothing around it but a little mucus. In another case we found the gall-bladder filled with pus instead of bile.

The symptoms occasioned by the different alterations in the excretory passages of the bile now considered vary according to the nature and seat of these alterations.

The gall-bladder may be filled with calculi, and even with pus ; its parietes may be the seat of different alterations ; its cavity may have diminished con-

siderably, or even have disappeared ; it may cease to receive any bile in consequence of the obliteration of the cystic duct, without any of these lesions producing during life any morbid phenomenon which could indicate them.

The gall-bladder distended very much by bile or by other matter (calculi, pus, etc.) may pass beyond the edge of the liver, and form a tumour in different points of the abdomen, where it becomes sensible to manual examination. We have detected it, 1st, immediately beneath the cartilaginous edge of the ribs of the right side ; 2dly, lower down in the hypochondrium, either directly perpendicularly downwards, and corresponding to the place it usually occupies, or inclined considerably backwards or forwards ; projecting, for instance, into the epigastrium ; 3dly, we have seen it touch the crest of the ileum, and even descend before it as far as the iliac fossa.

This tumour thus formed by the gall-bladder may not disappear, once it has shown itself. At other times it is observed to disappear after a longer or shorter time. This disappearance comes on principally under the following circumstances : 1st, when the obstacle which prevented the passage of the bile into the ductus choledochus ceases to exist; 2dly, when the bile, at first accumulated in its reservoir, becomes afterwards absorbed, and the gall-bladder, no longer receiving any additional bile, has a tendency to become atrophied ; 3dly, when the parietes of this same gall-bladder, distended, and more or less changed, come to be perforated ; whence there is a flow of bile either into the peritoneum, or into some other hollow organ, with whose cavity the gall-bladder accidentally communicates, or externally, in the case where adhesions are previously established between the gall-bladder and the abdominal parietes ; and the latter have in their turn become inflamed, ulcerated from within outwards, and perforated.

In speaking of the different changes which may effect the hepatic parenchyma, we stated that jaundice might come on in all, but was not necessarily the result of any. Observation proves, on the contrary, that every time there is obliteration either of the ductus hepaticus, or ductus choledochus, jaundice is produced. This obliteration may be occasioned either by a foreign body which obstructs the cavity of the ducts, or by tumours which compress it from without inwards, or by a process of inflammation which has produced engorgement and thickening of the mucous membrane, or that of the subjacent tissues. It may be readily seen that jaundice, owing to obliteration by one of these causes, must be, as the obliteration itself, temporary or permanent.

Some persons have admitted a jaundice from spasm of the bile ducts ; but this spasm has rather been asserted than proved ; and whilst we admitted that, under the influence of certain modifications of the nervous system, the liver may be changed in its mode of secretion, so as to occasion jaundice, we think that the cause of the production of this jaundice resides within the parenchyma of the organ, where the act of secretion is going on, and not in the excretory passages of the bile, the spasmodic contraction of which appears to be a mere hypothesis.

It follows, as a corollary, from our observations, that in a very great number of cases jaundice is produced, and continues a longer or shorter time without there being any appreciable obstacle in the excretory passages of the bile. The truth of this has also been admitted by M. Louis.

The following cases will point out the most important lesions which the excretory passages of the bile may undergo, and the different symptoms to which these lesions may give rise.

Case 30.—Acute inflammation of the ductus choledochus ; obliteration of its cavity—Rupture of the ductus hepaticus by distension of its parietes—Jaundice, with pain in the right hypochondrium, and a tumour in this same region formed by the gall-bladder—Peritonitis.

A shoemaker, thirty-five years of age, entered the Charité November 8th.

Six days before, after an excess at table, he was seized with an acute pain to the right of the epigastrium, a little below the edge of the ribs. On the day after, he perceived that his skin was of a yellow colour. November 9th he presented the following state; yellow tint of the conjunctivæ and of the entire cutaneous surface; dull pain in the right hypochondrium; beneath the anterior extremity of the eleventh rib a pyriform tumour is felt, moveable under the finger, not painful; the large extremity of which passes a little below the line of the umbilicus, the small extremity being lost behind the ribs. Tongue natural, thirst not great; appetite none, stools scanty, and devoid of colour. Pulse frequent, skin hot and dry. We considered the tumour of the hypochondrium produced by the gall-bladder filled with bile (leeches to the anus; whey with acetate of potass; strict diet). The four following days the tumour increased; no other change took place. On the 13th, he was seized on a sudden with a much more acute pain, which, setting out from the hepatic region, soon involved the entire abdomen. When we saw the patient on the next morning, this pain still continued; its extreme acuteness, and its being increased by the least pressure, sufficiently proved that it was occasioned by peritoneal inflammation; at the same time the face was pale, features sharpened, and very much changed, great anxiety; pulse small and very frequent; extremities now cold, (two blisters to the legs, twenty leeches over the abdomen). He died in the afternoon.

Post-mortem.—The peritoneum was filled with a purulent liquid, the colour of which was in general yellow, but much more so in the right flank. The inner surface of the duodenum presented an entirely red colour. The point where the ductus choledochus opened, and which, under ordinary circumstances, is found very readily, was marked by a small rounded tumour, pierced at its centre by a sort of capillary orifice, the breadth of a line at most, and raised about three lines above the level of the intestinal surface. A very fine probe introduced into the orifice, on the centre of this tumour, at first met no cavity. However, when pushed in with force, it appeared to get clear of some obstacle, and was soon in the ductus choledochus, the extent of which it traversed with some difficulty, as if the ordinary cavity of the canal was effaced, and as if the probe restored it a little according as it was pushed carefully from the intestine towards the liver. When cut into in different directions, the ductus choledochus presented an almost imperceptible cavity; its parietes were considerably thickened, they were very friable, and very easily torn. On the contrary, the ductus hepaticus and cysticus were considerably increased in size, as also the gall-bladder. A little before the union of these two ducts, the hepatic duct presented a solution of continuity of an irregularly-rounded form, and large enough to admit a small pea. The texture of the parietes of the canal around this perforation did not appear changed. The cause of the peritonitis was now very evident. Some red patches on the mucous membrane of the stomach.

There are few cases wherein the symptoms observed during life correspond so accurately with the lesions found on the dead body. In consequence of an irregularity in diet, the stomach and duodenum became inflamed; the inflammation, which was but slightly marked in the first of these organs, became much more severe in the second; the irritation of the duodenal mucous membrane extended, by continuity of tissue, to the portion of membrane lining the ductus choledochus. Thus the lachrymal ducts are inflamed in ophthalmia, and the seminal ducts in urethritis; thence engorgement of the mucous membrane, obliteration of the cavity of the ductus choledochus, and consequent accumulation of bile in the gall-bladder, formation of the tumour in the hypochondrium, probable reabsorption of another portion of the bile, and production of jaundice. With respect to the hepatic duct, its increased capacity seems to prove that it had been very much distended with bile. Was this distension pushed far

enough to occasion rupture of the parietes? One may suppose it, in consequence of their attenuation. Another remarkable circumstance is, that the inflammation, which was very severe throughout the entire ductus choledochus, was confined to this duct, and that the hepatic and cystic ducts were entirely exempt from it. Other mucous surfaces also present frequent instances of inflammation, the seat of which is found to be accurately circumscribed, as here. Thus, in the great majority of cases of gastritis, the redness of the mucous membrane terminates abruptly, on the one hand, at the cardia, and, on the other hand, at the pylorus. Thus, it is not uncommon to see one of the surfaces of the ileo-cæcal valve present a bright red colour, whilst the other surface is white. This change of colour occurs abruptly. No shade, no intermediate tint, separates the inflamed from the healthy spot.

Case 31.—Chronic inflammation of the ductus choledochus and cysticus: obliteration of their cavity by thickening of the parietes; softening and rupture of the parietes of the gall-bladder. —Jaundice—Super-acute peritonitis.

A man, sixty-four years of age, entered the Charité in December, 1821. Three months before, he had been seized, without any known cause, with bilious vomiting, which lasted several days. This ceased spontaneously, but was succeeded by profuse diarrhœa, which continued about a month, and exhausted the patient. Towards the middle of September the diarrhœa diminished, but the patient's strength did not return. Appetite was nearly gone, and digestion of food became difficult. Yellow tint of eyes, and of the entire skin, then began to be perceptible. At the time of his entering the hospital he presented the following state: — The entire skin was of a yellow colour, bordering a little on green; emaciation considerable; tongue nearly natural, but there was complete anorexia. The little food which he took occasioned in the epigastric region a sensation of weight and heat, which lasted for several hours. Stools scanty, of an ashy-grey colour. The abdomen, when carefully examined, presented no tumour; it was everywhere soft and free from pain. The pulse became a little accelerated only towards evening. A blister applied over the epigastrium was of some effect in assisting digestion. Leeches had been applied without any advantage. Milk and soups were his principal diet. About fifteen days after his admission the state of the stomach seemed to be improved; the evening fever was much less marked, but the jaundice continued; the strength did not return; emaciation increased. One morning, when attempting to sit down, he felt at once a sort of *tearing* in the right hypochondrium. Some minutes after an acute pain was felt at first in the right side, then all over the abdomen. On the next morning he presented all the symptoms of acute peritonitis. From the sudden way in which it had commenced, and the well-marked sensation of tearing experienced by the patient, we were disposed to refer it to intestinal perforation as its cause. He died during the night.

Post-mortem. — A great quantity of a dirty grey liquid was effused into the peritoneum, which had been already covered with membraniform concretions in several points. The gall-bladder, which was very much reduced in size, presented in its lower surface, not far from its large extremity, a solution of continuity about the breadth of a five-sous piece. The parietes of the gall-bladder were remarkable for their great friability. On endeavouring to penetrate from the interior of the gall-bladder into the cystic duct, we could not enter it. Then making an incision in the ductus choledochus, to ascend from this duct into the cystic, we discovered that the cavity of these two ducts was become so small, that it was impossible to introduce the finest probe into it. This almost total obliteration was produced by thickening of their parietes. The ductus hepaticus, on the contrary, was very much dilated, and filled with biliary concretions. The mucous membrane of the stomach was of a slate colour, and

was very much thickened, as were also the subjacent cellular and muscular tunics; the dura mater was very yellow.

Here again an almost total obliteration of a portion of the bile ducts was occasioned, very probably, by an inflammatory state of these ducts. The disease first appeared under the form of a simple gastro-intestinal inflammation; this inflammation soon extended to the bile ducts; and their engorgement produced the jaundice: this case, however, differs from others which we have seen in this, that here the inflammation passed into the chronic state, and after lasting several months produced such thickening of the bile ducts, that if the patient had lived some months longer, it is probable that their obliteration would have been complete, and they would have been found changed into a sort of ligamentous cord. The obliteration of the cystic canal explains why, in this case, the gall-bladder, far from being distended and forming a tumour, was, on the contrary, found to be very much reduced in size. The parietes, which were softened and friable, seemed to have participated in the inflammation of the ductus cysticus and choledochus; only the inflammatory process which had thickened and hardened the parietes of these ducts, had, on the contrary, softened the parietes of the gall-bladder. We should not be astonished at these two opposite effects of inflammation in different parts of the same tissue; mucous membranes present frequent instances of the same thing. Thus the same symptoms of inflammation having existed, we sometimes find the gastric mucous membrane so softened, that it forms merely a sort of organised pulp; sometimes, on the contrary, it is found thicker and harder than natural; the same thing holds good in those individuals in whom these two morbid states are found combined in different parts of the stomach. The rupture of the softened parietes of the gall-bladder comes under the head of those cases of perforation of the stomach, where rupture of the parietes of this viscus is but the last degree of their softening.

Case 32.—Transformation of the cystic duct into a fibrous cord—Considerable dilatation of the ductus choledochus without the existence of any obstacle at its duodenal extremity: phosphate of lime calculi in the gall-bladder—Liver large and granulated—Ascites, no jaundice—Latent pericarditis.

A merchant, fifty years of age, had been unfortunate in some speculations, and had, in consequence, suffered great mental disquietude—this was in 1815; his health, till then good, began to decline; he had jaundice, which was but temporary, then ascites.

In 1816 he had the operation of paracentesis performed twice; during the nine years following his health was uniformly bad. In 1817 the ascites disappeared spontaneously, and did not return till some months before his admission into the hospital (1825).

When we saw him there was a large tumour in the right hypochondrium; it was felt as far as the vicinity of the umbilicus; it had never been painful. The abdomen was very much swollen, and evidently the seat of fluctuation. The extremities were not infiltrated; they were only once so in 1816. Tongue natural, appetite good, pulse very small, a little frequent; cough and short breathing since the last year. This patient had been but a few days in the hospital; he still retained some strength; he used to rise from bed, and walk about the ward, when one morning he was found in a state of coma; extremities cold, pulse imperceptible. He died two hours after the visit.

Post-mortem. Abdomen very much depressed, which in the preceding visit we found considerably swollen. Face and limbs emaciated.

Cranium. Cellular adhesions of the arachnoid lining the dura mater to that lining the superior and lateral parts of the cerebral hemispheres; subarachnoid cellular tissue infiltrated with a considerable quantity of serum; the lateral ven-

tricles also contained a considerable quantity ; they remained dilated even after the fluid was allowed to escape.

Thorax. The old cellular adhesions of the pleuræ costalis and pulmonalis ; numerous miliary tubercles on the centre of the upper lobes of each lung. Pericardium distended with three glasses of a red liquid, like blood as it comes from a vein. All the internal surface of the pericardium was lined with false membranes lying one on the other.

Abdomen. The peritoneum contained but a small quantity of serum. The liver was closely united by false membranes on the one hand to the diaphragm, and on the other hand to the spleen, stomach, and colon. Thick false membranes kept the gall-bladder from view, which, being reduced to a very small size, contained merely some thready mucus, and three small concretions of a dull white colour, which were found to consist of phosphate of lime. The cystic duct was changed into a fibrous cord as far as its entrance into the hepatic duct ; at the point, where these two ducts separated, a small calculus was found, similar to the ordinary biliary calculi. The ductus choledochus was three times its ordinary size. A hard tissue, several lines in thickness, and of a scirrhous appearance, lay between the peritoneum which covers the two surfaces of the liver and the proper membrane of this viscus, which, beneath this accidental tissue, appeared in the form of a slightly undulating line. The liver was very large, and passed several fingers' breadth beyond the edge of the ribs ; it extended into the left hypochondrium. Whence cut into indifferent directions, it everywhere presented a remarkably dense tissue of a greyish-white colour, and streaked with a great number of granulations. Spleen very large ; red spots in the duodenum.

Though this case is incomplete in several points, it possesses some interest in more than one respect. First, it will be observed that there was no jaundice here ; and accordingly, the cystic duct alone was obliterated. The bile no longer reached the gall-bladder, which contained merely some mucus, and concretions entirely foreign in their nature from biliary calculi. What was the cause of the great dilatation of the ductus choledochus ? Was its cavity enlarged, in order to supply the gall-bladder, and to discharge, by its increase of size, the functions of a reservoir ? In support of this idea it may be remarked, that, in several animals who have no gall-bladder, and in men who have been deprived of it, a similar dilatation of the ductus choledochus has been observed.

We have more frequently found such an enlargement of the cavity of the biliary ducts behind a calculus which obstructed some point of their extent. Among other cases of this kind, we may mention that of an individual, more than sixty years of age, whose gall-bladder and biliary ducts contained a great number of calculi. Several were accumulated towards the duodenal extremity of the ductus choledochus, and completely stopped up its orifice. This, when seen in the duodenum, was more apparent than usual, and presented at its circumference a sort of puffiness, which made it resemble the anus. Behind this collection of calculi, the ductus choledochus had undergone such dilatation, that its diameter equalled that of the vena portæ. The same may be said of the ductus cysticus and hepaticus. The branches which formed the latter, being filled with calculi, were also so dilated, that one of them when open might admit the index and middle finger united.

This case, again, presents another instance of the coincidence of a state of coma terminating in death, with the sudden disappearance of the liquid of a dropsy, without any supplementary evacuation being set up.

The false membranes, which surrounded the liver, and which united it to several neighbouring parts, were not indicated in their formation by any acute pain. The lesion of the pericardium was not less obscure. The pulmonary tubercles were not announced by any characteristic sign.

THIRD BOOK.

OBSERVATIONS ON PERITONITIS.

SECTION I.

ACUTE PERITONITIS.

In the following cases we shall endeavour to direct attention principally : 1st, to some of the causes which must frequently give rise to inflammation of the peritoneum ; 2dly, to the different symptoms which indicate the existence of this inflammation ; 3dly, to its progress, which, in certain cases, is so acute, that not very many hours intervene between the commencement of the disease and the patient's death, whilst at other times its fatal termination does not take place till after a lapse of from thirty to forty days.

CHAPTER I.

Case 1.—Acute peritonitis terminating in death.

A boy, about fifteen years of age, of a delicate constitution, presenting no signs of puberty, a copperplate-printer, had been engaged at his usual occupation on the morning of the 30th of April : he had breakfasted as usual. Towards two o'clock in the afternoon, he felt suddenly in the right flank a pain so severe as to oblige him to go to bed. In the night, this pain extended to the right hypochondrium and epigastrium ; vomiting took place, and the patient began to sink very rapidly. These bad symptoms continued for the two following days, during which he kept his bed. He drank nothing but sugar and water. On May 2d, we saw him for the first time, when he presented the following state :

Face was pale, expressive of the most intense anxiety, eyes dull, surrounded with a very marked bluish circle ; intellectual and sensorial faculties intact ; abdomen tense and resisting, the slightest pressure occasioning the most intolerable pains over all the right side of the abdomen ; no perceptible fluctuation. Frequent vomiting of a green bile ; constipation ; tongue moist and whitish ; pulse of moderate frequency, and of ordinary strength, and also regular ; skin hot and dry. (Bleeding to twelve ounces ; thirty leeches over the abdomen ; emollient fomentations ; flaxseed lavements, with almond-oil, &c.) The blood taken from the vein presented a large buffy coagulum. The pains were somewhat diminished during the day ; at night he enjoyed a little sleep.

Next day twenty more leeches to the abdomen. The vomiting ceased in the day. Next day, expression of the face more natural ; perceptible diminution of the abdominal pains ; the diminished frequency of the pulse, the improvement which the patient stated he felt, all indicated an evident amendment. Still the tension of the abdomen continued : the peritonitis had not, therefore, been resolved ; but it seemed disposed to pass into the chronic state. In the day, the improvement still kept up ; the skin was covered for the first time with a gentle moisture, and soon with a profuse sweat ; this evacuation, which coincide with a perceptible improvement of all the symptoms, might be considered as a salutary

critical movement. In the evening, the temperature which, had been very high all the day, suddenly fell; the wind, entering through the open windows, affected the patient. The next day he was dying; the face had undergone, since the preceding day, so great a change, that one could scarcely recognize him: all the skin was cold; the extremities livid and icy; pulse imperceptible; the respiration, high and hurried, was performed solely by the movement of the ribs. Small quantities of bile were occasionally vomited. Tongue still moist; and the intelligence clear as ever. He died two hours after the visit.

Post-mortem, twenty-two hours after death. Extremities still livid; limbs rigid; ventricles of the brain contained a very small quantity of serum. The right and left cavities of the heart contained some fibrinous, polypus-like coagula interlaced between the columnæ carneæ, and extending into the different vessels. The small intestines were distended with a great quantity of gas. The peritoneum covering them was very much injected, without a trace of any secretion. But on raising the intestines the right flank and right iliac region were found to be filled with a white liquid like milk: this same liquid was accumulated in the cavity of the pelvis as also in the left flank. The two surfaces of the stomach, the ascending colon, the convolutions of the small intestines contained in the pelvis, the convex surfaces of the liver and spleen, as well as the corresponding portions of the diaphragm, were lined with whitish membraniform concretions, which did not yet present any trace of organisation. The transverse colon adhered to the great curvature of the stomach by an albuminous band of considerable consistence.

The inner surface of the stomach was white, except in five or six places, each of which, on an average, was the breadth of a ten sous piece, where there appeared considerable redness owing to an agglomeration of small injected vessels: every where and even in these red parts the mucous membrane was of its natural thickness and consistence.

We have here a case of acute peritonitis, exempt from all complication, and accompanied with well-marked symptoms. Here there was no precursor; none of those intermediate states between health and disease. The first morbid phenomena was pain; at first partial, it soon became general and rather acute, accompanied with such distress as to oblige the patient instantly to keep his bed; this pain, moreover, had all the characters which belong to inflammation of the peritoneum; tension of the abdomen without perceptible fluctuation, profuse vomiting without any other sign of the gastric mucous membrane being affected; that peculiar alteration of the features serve still more to confirm the diagnosis. Still, in the midst of this dangerous state, the pulse, which was of moderate frequency and of ordinary strength, announced nothing alarming; one would not have found it otherwise in case of a mere accession of fever; it was far from having that concentration and smallness said to be characteristic of peritonitis, and such indeed as it is generally found in this affection; a proof among many others that it is never from a single sign that any disease can be diagnosed. I think that in such a case as this all the science of Bordeu and Fouquet, with respect to the pulse, would have been deceived. I do not mean by this to say that the consideration of the arterial pulsations is unimportant; but I am disposed to think we should not lose sight of the fact, that the information furnished from this source, has been on more than one occasion altogether incorrect: this assertion is proved to be true in fact; in theory it must hold equally good, since in peritonitis, as in every other disease, the disturbance of the circulation is purely the result of sympathies, which must vary to an infinite degree with respect, first, to their very existence, secondly, with respect to their nature, and thirdly, with respect to their energy. Moveover, observation has taught us that every inflamed organ produces a special modification in the beats of the heart, both with respect to their strength, their frequency, and

their rhythm ; whence it follows that each species of inflammation is more frequently accompanied with such a pulse than with any other. Thus nothing can be less alike, in most cases, than the pulse of pneumonia compared with that of gastro-enteritis, or the pulse of pleuritis compared with the pulse of peritonitis ; but it is no less true that we should come to extraordinary miscalculations, if we were not fully convinced that to these general rules there exist very numerous exceptions.

When this patient entered the Charité, his situation was very alarming : under the influence of active antiphlogistic treatment, a perceptible improvement took place. On the sixth day the inflammation was not resolved ; but there was some ground for hopes that it would be cured or would pass into the chronic state, when, in consequence of a sudden interruption of the cutaneous transpiration, which had become very profuse since the improvement had taken place, the peritonitis again became acute and rapidly carried off the patient. The *post-mortem* examination showed what is ordinarily found in cases of recent peritonitis whose progress is very acute, namely, pus and membraniform concretions not yet organised. Now, who can assign a precise term to the period when this organisation commences ? There are some cases where only twenty hours after the commencement of an inflammation of the peritoneum, we have been able to trace and to inject vessels developed within the fibrinous concretion which had become a living tissue : there are other cases, where, several months after the attack of peritonitis, no traces of organisation have been found in the membraniform layers. No doubt there are good reasons for these differences ; no doubt the degree of inflammation, the nature of the effusion, several local or general conditions which escape us, exercise considerable influence over the greater or less rapidity with which pseudo-membranes become organised ; but certain as we are that these different effects imply the idea of different causes which produce them, we have not yet attained the power of determining these causes. And yet till this be determined, what shall we know ? Nothing, but that under the influence of sanguineous congestion variable in intensity, the most different products may be formed. But whence comes this difference ? We cannot tell, at least in the majority of cases, and yet it is evident that it is a point which it would be of the utmost importance to ascertain ; for the sole consideration of the sanguineous congestion leads us to one single mode of treatment merely directed to combat it, and which like it, can vary only in degree. Other therapeutic views might probably arise from the knowledge of the causes under the influence of which one and the same sanguineous congestion existing, there is a specific difference in the products of this congestion.

Case 2. — A tiler, eighteen years of age, with brown skin, chestnut hair, muscles slightly developed, residing in Paris for the last two years, was in the habitual enjoyment of good health. On the 2d of March, without any known cause, he began to complain of severe abdominal pains, which continued on the following days. These pains were not constant, and did not always occupy the same points of the abdomen, sometimes affecting the entire of it, sometimes confined to one or other hypochondrium, or to the flanks, or appearing beneath and around the umbilical region. He kept his room, but not his bed, and adopted no medical treatment for the five following days, during which time he vomited frequently. On the morning of the 9th he entered the Charite and presented the following state : —

Face flushed, though calm ; muscular strength still retained ; abdomen tense, resisting, without any appreciable alteration, exhibiting every where an acute sensibility which is increased by the slightest motion, or the least contact. Posteriorly, on both sides of the vertebral column, on a line with the last ribs, percussion is very painful. Pulse small, very frequent, a little irregular ; skin dry and hot ; there is at the same time a bitter taste on the mouth, a yellow

coating on the tongue, constipation. Notwithstanding the long time which had elapsed since the invasion of the disease, the symptoms of peritonitis were still sufficiently acute to warrant us in expecting to derive benefit from blood-letting. (Thirty leeches over the abdomen, two demi-lavements of marshmallow root, with the addition of half an ounce of sweet almonds in each emollient fomentation over the abdomen, oil mixture, &c.)

The patient found considerable relief from the leeches. On the 10th, abdomen less tense, and much less painful. Pulse very small, and 140. His drinks had been several times vomited. Two stools. (Eight leeches to the anus.) On the three days following the vomiting ceased; the abdominal pains, which moderate pressure excited on the 11th, were no longer felt on the 12th on applying equal pressure. Pulse still frequent; profuse diarrhœa had now set in. Eight leeches were applied to the anus each of the first two days. Still the peritonitis which was no longer indicated by pain, was sufficiently characterized by the tension and resistance of the abdomen.

On the 14th. Abdomen tympanitic, and again painful. Twenty-four leeches over the hypogastrium, and on the next day the pain as well as the tympanitic state had ceased. Still the pulse was frequent, and the purging continued; the face was habitually red and moist. On the 14th, he desired to have some rice cream. After the visit he determined to leave the hospital, because he thought he was not allowed sufficient nourishment. For this purpose he arose from bed, dressed himself, and walked with a firm pace across the room. He was brought back, however, to his bed, and became more resigned. In the evening he began to vomit, and died on the morning of the 17th, the fifteenth day from the first appearance of the pains. We could not ascertain whether he had procured any food.

Post-mortem.—The parietal and visceral peritoneum were united by close adhesions. The intestines were glued together by white thick membraniform layers, which as yet presented no rudiment of organisation. Beneath them the cellular tissue between the serous membrane and the muscular tunic of the intestines presented a bright red injection. The pseudo-membranes, which united the latter, enclosed between them spaces, which contained a milk-like fluid. This liquid was in great quantity in the pelvis, in the two flanks, and between the superior surface of the liver and diaphragm. Stomach distended with gases. Peyer's plexus appeared under the form of black points crowded together. The mucous membrane of the large intestine presented a great number of small black points, separated the one from the other, and surrounded with a slight elevation of the mucous membrane.

In this patient the peritonitis had a different physiognomy, if we may be allowed the term, from that described in the first case. In this latter (first case), the pains attained all at once their maximum of intensity, and all at once they were accompanied with the most distressing symptoms. In the case now before us, there was, to be sure, simultaneous with the first pains, some vomiting, but the patient did not keep his bed; if he had fever at the moment it was slight; his pains disappeared at intervals, and when they did return, it was not always in the same points: by these characters they might be readily taken for what are called nervous or rheumatic pains, which, though remarkably severe, are not in general accompanied by any alarming symptom. It must be well known that such is the onset of certain inflammations of serous membranes; thus, in the case of arachnitis, the headach often precedes all the other symptoms by several days; thus also, in a preceding part of this work, we have cited cases of pleuritis, in which at first the patients had only moveable intermittent pains in several points of the thoracic parietes, without these pains being in the first instance accompanied by cough, dyspnœa, or fever; but afterwards they became constant, and fixed to one point, and then the ordinary symptoms of pleuritis be-

came developed. When we saw the patient the peritoneal pain was very severe; immediately after the application of leeches over the abdomen it was lessened, and two days after it disappeared altogether, though the other symptoms of peritonitis still continued; the appearance of profuse diarrhœa coincided with the cessation of the pain. Still the disease was far from being cured; this was one of those cases where there is a transition from the acute to the chronic state: only this transition occurred more promptly than usual. This is one of those cases in which we have seen the peritoneal pain disappear very rapidly, after having been very intense, and without this disappearance being accompanied with any perceptible abatement of the other symptoms. Observe then with what facility this pain was again excited, which was in a manner but lulled for a while. The first time it was relieved by the application of leeches; a second time, this application was not made; the return of the pain and of the vomiting soon followed a strong mental excitement, and a momentary exertion made by the patient. This new relapse carried him off, and it would be difficult to say what was the cause of death here, since a few hours before he died he possessed considerable strength, and the *post-mortem* showed no lesion in any organ but in the peritoneum; the lungs in particular were not even engorged. Thus, this individual passed without a struggle from life to death amidst intense pains, indicated by the continual cries he uttered a few hours before death. He did not die of exhaustion, since a few hours previously he was able to put on his clothes and walk.

We may be satisfied in this case, that the vomiting which so often accompanies peritonitis in its different stages, is far from being always connected with gastric inflammation: for the patient vomited up to the last moment, and yet the gastric mucous membrane was found perfectly healthy. See also how little marked was the morbid change in the intestines (simple hypertrophy of the follicles with black colouring around them), though a profuse diarrhœa had existed for several days. To conclude, we may find in the existence of the numerous cells within which the effused liquid was as it were imprisoned, a cause of the obscurity of the fluctuation, in more than one case of peritonitis, where, as in the case now under consideration, the purulent or serous collection was still rather considerable. Here again we find no trace of organisation in the false membranes, and yet the patient did not die till the seventeenth day.

Case 3. A looking-glass maker, nineteen years of age, had been engaged in handling mercury during the winter of 1822, and he slept in a bed-room which contained some; severe tremors soon affected his limbs, which ceased, however, when he discontinued his work. Still he retained a state of general debility, he had no appetite. On the 29th of June he was seized without any known cause with acute abdominal pains and vomiting. On the 1st of July he presented the following state.

The face pale and sharpened, was expressive of the most acute anxiety: the slightest pressure occasioned most intense pain in the abdomen; abdomen tense, tympanitic in the course of the colon, without any perceptible fluctuation. Tongue red and a little dry, great thirst; a considerable quantity of green bile had been vomited several times during the last twenty-four hours; no alvine evacuation during the last two days. Pulse frequent and small, skin dry and hot. (Venesection to sixteen ounces; thirty leeches over the abdomen; two ounces of caster oil in divided doses; solution of syrup of gum acidulated with lemon juice, four emollient demi-lavements; emollient fomentations over the abdomen.)

The blood drawn from the vein collected into a large coagulum covered with a thin buffy coat; he again vomited some green bile in the course of the day, and had five or six stools.

On the second the general symptoms were all amended, but the pain and

tension of the abdomen still continued; (sixty leeches over the abdomen;) up to the day he had nausea, but no vomiting; after the leeches he became very much exhausted; pulse, which were hardly perceptible, was now very frequent; the extremities became icy cold; and the next morning his features were entirely changed, he appeared to be dying (one ounce of castor-oil, drinks and fomentations as before; sinapisms to the legs). In the course of the day his strength rallied, and on the morning of the 4th of July there was an evident improvement. A profuse sweat in the night; for the first time he enjoyed some sleep. From the seventh to the fourteenth day the symptoms of acute peritonitis seemed to improve; from the twelfth day some nourishment was allowed (rice-cream); from the fourteenth to the twenty-fourth day the abdomen diminished in size, and was nearly free from pain; diarrhœa still; on the twenty-fifth day he took some panado, but vomited it. During the twelve first days of August the abdomen became still more soft, and was now free from pain in every part. This individual reached the forty-fifth day of his peritonitis, and every thing seemed to announce a favourable termination, when he had the folly to commit an error in regimen, by eating a leg of a chicken. Immediately the vomiting and diarrhœa returned, and severe fever set in. On the morning of the forty-sixth this still continued, and at the same time the breathing was short and hurried; he coughed without expectorating, and complained of smothering. Still the abdomen was neither more tense nor more painful; he now became very much exhausted again. Percussion of the chest detected a diminution in its sonorousness on the left posteriorly, nearly over the entire lower lobe of the lung of this side; in the same space a mixture of the mucous and crepitous râle was heard. (Venesection to twelve ounces.)

On the two following days the pectoral symptoms improved; his breathing, however, was evidently shorter than before his last relapse; and besides auscultation and percussion continued to indicate an inflammatory engorgement of a portion of the left lung. This pneumonia remained latent for the fifteen days following (end of August). His strength returned but in a slight degree; pulse still frequent; he was evidently under the influence of a chronic inflammation with local symptoms not well marked. At the commencement of September he committed another error in diet by eating some bad figs, by which he brought on a fit of indigestion. In sixty-eight hours his countenance asssumed a cadaveric aspect, his extremities became cold, and he expired without a struggle.

Post-mortem. The intestinal convolutions were united by false membranes, several of which had already a cellular appearance; numerous vessels were now seen to ramify over them; others, which were softer, and seemed to be of more recent formation, covered the convex surface of the liver; the flanks and cavity of the pelvis were filled with thick pus. Within four or five fingers' breadth of the ileo-cæcal valve there were four broad ulcerations, with white bottom, consisting of cellular tissue, and with edges a little brownish, on a level with the bottom. Another ulceration of the same appearance, the breadth of a thirty-sous piece, was found immediately below the ileo-cæcal valve. The lower lobe of the left lung was impervious to air, and presented a mixture of red and grey induration.

The disease which forms the subject of this case presents four periods for our consideration: 1st, that during which the peritonitis commenced and proceeded in an acute form; 2dly, the period of the transition of this inflammation to a chronic state; 3dly, another period, during which all the symptoms of peritonitis apparently leave the patient; 4thly, the last period, from the commencement of the pneumonia to the death of the individual.

In the first period we have to remark the sudden invasion of the abdominal pain, which suddenly acquired its greatest intensity; the vomitings which here coincided with the red and dry tongue, a circumstance which was not observed

in the two preceding cases; the gradual improvement of the symptoms under the influence of copious bloodletting; the state of debility, apparently very great, into which the patient fell after the second of these bleedings, but which soon disappeared, and was followed by a perceptible amendment both in the local and general symptoms of the peritonitis.

In the second period we see the vomitings cease, the pains disappear, but the abdomen retain a degree of tension, still indicating the existence of the peritoneal inflammation. A fact, which seems of some importance, is the facility with which, in consequence of a very slight increase in the patient's usual diet, the peritonitis repassed for a moment into the acute state.

Afterwards, the tension of the abdomen also disappeared; every thing seemed to announce a resolution of the peritonitis; yet the *post-mortem* examination, which took place long after this, proved the existence of serious alterations in the peritoneum; namely, pus effused in different points of the cavity of this membrane. With respect to the cellular adhesions, they indicated the cure of the inflammation; we found similar adhesions in persons who several years before had had all the symptoms of an acute peritonitis, from which they recovered, and at the time we saw them they did not complain of any pain in the abdomen. If besides, these adhesions were very numerous — if they intimately united all the intestinal convolutions, we can readily conceive that the result might be, on the one hand, some modification in the form of the abdomen, habitual tension of the abdominal cavity, and on the other hand, more or less disturbance of the digestive functions. Be that as it may, from the case now under consideration, we shall draw this consequence, that when in an acute or chronic inflammation of the peritoneum all the local symptoms have disappeared, the morbid change of the peritoneum has not for that reason completely ceased to exist in all cases; this is applicable moreover to inflammations of all organs; there are few of them in which pathological anatomy has not proved that a residue of lesion may survive the local symptoms which announced it. What happens then? Most frequently in the absence of these symptoms, the suffering organ continues to exercise a mischievous influence either on the circulation, whence more or less fever is kept up, or on the function of nutrition, whence the strength and flesh are prevented from returning. However, as every acute symptom has disappeared, the individual is considered to be in a state of convalescence; but such is far from being the case, and then the slightest deviation in diet, the least imprudence, occasions a relapse, which is but the rekindling of an inflammation, which was only quenched a little, but not entirely extinguished.

This deviation in regimen actually took place in our patient; but what was very remarkable, it was not the organ primarily affected that felt its pernicious influence; thus the symptoms of peritonitis did not reappear. It was not even the intestinal mucous membrane that was affected; but all the signs of acute pneumonia were seen to appear, which itself soon passed into the chronic state, and which, without the aid of auscultation and percussion, one would consider cured, as well as the peritonitis.

In this state of things, wherein several organs were found at one and the same time in a state of chronic inflammation, the least unusual shock given to the system, the least violence offered to this machine already deranged in several points, is sufficient to destroy it, by arresting probably the action of the nervous system, the functions of which had been for a long time perverted. How else are we to account for the manner in which this patient died after another deviation in regimen, and that without the symptoms of the triple affection of the lung, intestine, and peritoneum, being perceived to have been in the slightest degree aggravated?

We cannot conclude these reflections, without remarking the ulcerations which were found towards the termination of the small intestine, and which were con-

nected with a diarrhœa of long standing, which had ceased only at intervals. Compare now the state of the intestine in this patient, and in the preceding, who also had diarrhœa: the mode of alteration is very different.

Case 4.—Peritonitis by external violence.

A middle-aged man, of a strong constitution, had received a kick of a horse in the abdomen, near the umbilical region; no solution of continuity had been occasioned; a large ecchymosis was produced on and around the part struck; the patient instantly vomited several times, and about three hours after the accident, he felt very acute pains in the abdomen. In two days after he entered the Charité, presenting all the symptoms of acute peritonitis; abdomen tense, tympanitic along the course of the colon, so painful that the weight of the bedclothes could not be borne; very frequent vomiting of green bile; constipation; face pale, and features sharpened; pulse very frequent and weak; skin not hot. The exhausted state of the patient prohibited general bleeding; thirty leeches were applied over the abdomen, two blisters to the legs, emollient lavements and fomentations. In the twenty-four hours following no improvement took place, and he died on the fifth day.

Post-mortem. Blackish, half-coagulated blood effused between the fibres of the muscles of the abdominal parietes. The peritoneum covering these parietes was raised by this blood and coloured by it on its external surface; the cavity of the peritoneum was filled with a liquid resembling whey not clarified, in the midst of which whitish flocculi floated, several of which extended in layers over a great number of intestinal convolutions, over the ascending and descending colon, in the stomach and liver. In five or six places of these membraniform excretions some red points, very distinct, were observed, and in other parts some reddish lines. Beneath the pseudo-membrane the peritoneum presented considerable injection, the seat of which appeared to be the cellular tissue situate beneath it. Kidneys remarkably pale.

This case is remarkable for the cause which produced the peritonitis, for the rapid succession of the symptoms, and for the promptly fatal termination of the disease. Here there was no complication; the several phenomena and death were solely the result of the inflammation of the peritoneum, or, to speak more correctly, of the sympathetic disturbance occasioned by this inflammation in the nervous system; thence, the sudden sinking of the strength, the secession of the blood from the cutaneous capillaries, the suspension of the function of calorification, the weakness of the pulsations of the heart, which, at the same time that they diminish in strength, become more and more frequent. Thus, then, it is not solely on the rapidity of the circulation that the production of the heat of the skin depends. It is, moreover, only in a certain order of their functions that the nervous centres are modified; for up to the last moment no disturbance was observed in the intellectual and sensorial faculties; neither did the lungs present, up to the last moment, any disturbance in the performance of their functions; so that the respiration, without having been first altered, without any intermediate change between the healthy and morbid state, became extinct all at once with the pulsations of the heart; and life thus disappeared, without our finding any appreciable change in the organs, the sound state of which should be, one would suppose, a sufficient guarantee for its continuance.

We have already remarked, in one of the preceding cases, the total absence of organization in false membranes, found in a case of peritonitis of considerably long standing. Here, on the contrary, where the attack of inflammation was of a much more recent date, the red points and lines found within several membraniform concretions were evidence of a process of organisation which was beginning to take place: this fact seems to me, moreover, to prove beyond all question, that the red part of the blood may form even in the midst of the false

membranes, and that it is not necessarily brought to them by vessels from the serous membrane continued into the false membrane.

Case 5.—Peritonitis, the attack of which coincided with the disappearance of articular rheumatism—Red effusion into the peritoneum—Malformation of the bladder.

A man, fifty-seven years of age, labouring under an incontinence of urine of long standing, and having had purging at intervals, had acute articular rheumatism with fever, when he entered the Charité, the beginning of November. Several of the joints became swollen and painful. In a day or two the swelling and pain of the joints ceased all at once, when, for the first time, acute pains were felt in the abdomen: this became very severe; pressure did not increase nor lessen them. The face became pale and expressive of the greatest anxiety; pulse very frequent and hard; this is what the old physicians used to call *rheumatic metastasis*. The principal indication seemed to be to recall the irritation to its primary seat. Every means were resorted to in order to effect this, but without avail. The abdominal pains spread over all the parts of the abdomen and became extremely acute; the slightest pressure now aggravated them. The abdomen became very much enlarged, and there was evident fluctuation. There was some nausea without vomiting. He died before the termination of the third day from the commencement of the attack.

Post-mortem. Scarcely was an incision made into the abdominal parietes, when an immense quantity of a red fluid escaped through the opening, in the midst of which some white flocculi floated. The intestines were coloured red, and on the surface of several of the convolutions, membraniform concretions of a red colour were deposited. The liquid in the peritoneum resembled blood drawn from a vein; no coagulum was observed in it, nor was any large vessel found to be opened. The follicles of the end of the small intestine, cæcum, and commencement of the colon were enlarged; these follicles were bounded by a black circle; a black point was also observed in their centre. The summit of the bladder was surmounted by a large oval pouch, which extended behind the packet of the small intestines, and adhered by its upper extremity to the third portion of the duodenum. This adhesion was evidently of recent formation. This pouch internally resembled the bladder, and in its parietes we could easily trace the different tunics ordinarily found in the bladder; its muscular fibres, however, were but little developed, and intermixed with much cellular tissue. This sort of supernumerary bladder communicated with the natural bladder by an aperture which was contracted by a thick ridge formed by the mucous membrane, and particularly by condensed cellular tissue. To the right of this opening, another small pouch was found, capable of containing a nut, which also communicated with the normal bladder; it was separated from the great pouch by a partition which projected into its cavity.

In the preceding parts of this work I cited cases of pneumonia, pleuritis, pericarditis, the commencement of which coincided with the disappearance of acute rheumatic affections; here we have a similar phenomenon, an attack of peritonitis succeeding to rheumatism. It matters but little whether we call this displacement of the disease metastasis or otherwise, provided the fact is not forgotten that the abrupt disappearance of rheumatism is often connected with the development of an internal inflammation, which, by reason of individual predisposition, attacks such or such an organ, principally serous membranes. The first day the abdominal pains were felt by our patient, they resembled what is commonly called rheumatism fixed on the intestines: what was particularly remarkable in these pains was, that pressure did not increase them; and in this state of things, it was not certain that there was peritonitis, and the prognosis was not yet decidedly bad. It is quite certain, that in many cases where, as here, acute and violent pains are suddenly felt in the abdomen, in persons either

at the time labouring or who formerly laboured under rheumatism, these pains disappear more or less promptly, without leaving behind them any trace of disease; and then it is at least doubtful, whether they are the result of peritoneal inflammation. But in the patient who forms the subject of the present case, it was not so; and from the second day of the appearance of these pains, the existence of peritonitis could not longer be called in doubt: fluctuation was felt in the abdomen, and the evidence of this fluctuation was itself a remarkable circumstance; for it generally happens that during the first days of the existence of peritonitis, the abdominal effusions being but inconsiderable, may be rather recognised by the tension and resistance of the parietes, the change in the form of the abdomen, than by any great increase in its size, or by the existence of fluctuation. Here it was otherwise, and the nature of the liquid found in the peritoneum sufficiently accounted for it. This liquid was blood, or at least serum united with the colouring matter of the blood, which in a very short space of time had been exhaled in an enormous quantity on the internal surface of the serous membrane; there were, moreover, flocculi and false membranes, which showed that this kind of hemorrhage was connected with an inflammatory state of the peritoneum. This is one of the most acute cases of peritonitis, without the existence of intestinal perforation, which we have ever seen. Scarcely three days elapsed between the invasion of the abdominal pains and the death of the individual; and still here, also, we find no appreciable lesion of any of the organs important to life, such as the heart, lungs, or nervous centres.

Case 6.—Peritonitis consecutive on acute metritis in a woman recently delivered.

A woman, thirty-one years of age, was delivered naturally, but with much difficulty and pain, of her first child, the beginning of December. Four days after she was seized, without any known cause, with violent fever and some pain in hypogastrium. The same evening she entered the Charité, and was very weak and much dejected. About three fingers' breadth above the pubis we found a globular tumour painful on pressure, which, in its form and position, resembled the body of the uterus. The hypogastric pain the patient stated was less than that which she felt in the groins. No discharge from the vagina; pulse frequent and hard; tongue natural; skin hot and dry. The case was announced to be acute metritis, for which leeches and the ordinary treatment were prescribed. Between the third and seventh day general bleeding was employed; leeches were twice applied; the fever diminished; the inguinal and hypogastric pain ceased, but the tumour still continued. She was sinking rapidly; great alteration of the features. On the eighth day vomiting set in; she vomited green bile, and her ptisan. The pain over the entire abdomen was aggravated by the slightest touch; still the abdomen was not tense: suppression of the alvine and urinary evacuations. About forty hours after these new symptoms she expired.

Post-mortem.—A turbid milky serum was effused in some quantity into the peritoneum, which was here and there covered with whitish membraniform spots, without any trace of true organisation; there was observed considerable injection, the seat of which seemed to be the subperitoneal cellular tissue. The latter was partially filled in several points with reddish serum. More flocculi and a thicker liquid than that contained in the rest of the peritoneal cavity of the pelvis. The tumour observed during life still projected above the pubis, and found to be the uterus enlarged. The tissue of this organ was become very friable, and was very easily torn; when an incision was made into its parietes, a large quantity of creamy pus gushed from every part of the organ, particularly from its fundus. The cavity of the uterus was very large and its surface red. Two remarkable lesions were found in the thoracic organs. 1st. A tuberculated state of the bronchial glands, which were very large. 2d. At the apex of the

left lung a small cavity, with cellulo-fibrous parietes, capable of admitting a cherry, and communicating by a species of anfractuous fistulæ with two other cavities of still smaller dimensions, all containing a small quantity of reddish liquid; the pulmonary tissue around these was black and hard; when viewed externally it was puckered, and was separated from the first rib by a sort of half-cartilaginous membrane several lines thick, evident of old false membranes of the pleuræ.

This case is remarkable in more respects than one. First it presented a striking instance of acute metritis, coming on without any known cause, after a first confinement in a young woman. After active antiphlogistic treatment the symptoms improved; and one would have supposed that the inflammation of the uterus was progressing towards resolution, if the size of the tumour formed by this organ had not remained the same. On the other hand the rapid sinking of the patient indicated the continuance of a serious lesion. What was very remarkable and deserving the attention of every practitioner was, that at the very time when the fever was becoming almost none, and the hypogastric and inguinal pain was disappearing, the uterus was becoming disorganised, its tissue was filling with pus, and towards the tenth day since the invasion of the metritis, this pus was already forming several abscesses. It is not uncommon to see the formation of pus in different organs with a marked remission of the worst symptoms; this, for instance, has been more than once observed in the brain. What attaches still further interest to the present case, is the rapidity with which the suppuration set in; the disease was chronic in several of its symptoms, and acute in its progress.

The peritonitis may be considered as having its point of departure in the portion of the serous membrane in the vicinity of the uterus. The copious bloodletting employed, state of debility of the patient, the acute marasmus with which she was struck, did not prevent the development of this new inflammatory process, which appeared to extend from the tissue of the uterus by contiguity of tissue, to its investing membrane, and thence to the rest of the peritoneum. One may say, generalising this particular case, that the circumstance of one organ being inflamed is a reason for others becoming so; so that in most acute, but principally in chronic diseases, it is extremely rare to find but one organ affected. However, in this same case, a remarkable exception to what has now been stated presents itself, an exception which, in the case of peritonitis, is almost constant; we mean the continuance of the healthy state of the gastro-intestinal mucous membrane, notwithstanding the very acute inflammation of the peritoneum.

The signs of peritonitis were manifest; one only was wanting, namely, tension of the abdomen; but the continuance of the soft state of the abdominal parietes is an ordinary case in women seized with peritonitis after delivery; the reason of it is evident. The alteration observed at the apex of the left lung I consider to indicate a cicatrisation of tuberculous cavities. This fact acquires considerable importance here, in consequence of the tubercles which existed in the bronchial glands; it is a proof in favour of the opinion of M. Louis, who thinks that every time any organ whatever contains tubercles the lung also contains some.

Case 7.—Acute peritonitis coming on during a chronic enteritis—Effusion of reddish serum into the peritoneum, without any other trace of inflammation of this membrane.

A stonecutter, fifty-four years of age, who had been several times treated at the Charité for metallic colic, had been labouring under severe purging for the last four months. When he entered the hospital he was weak and very much emaciated, there were nine or ten stools every twenty-four hours. Tongue natural; loss of appetite; abdomen soft, and painful only at intervals, generally

before going to stool. (Sydenham's white decoction; gum potion; starch lavement, with two drops of Rousseau's laudanum and yolk of egg.) The next day but four stools. For the three following days the same treatment was adopted. Only three stools per day. On the 24th some decoction of catechu was added. Only two stools up to the following morning; abdomen free from pain; no fever. The same medicine, and the same state of the patient, up to the 28th. Two stools per day without pain. M. Lerminier now substituted for the other medicines the decoction of simarouba. The patient continued this treatment, from the first to the 6th of March. But one stool in the twenty-four hours. Abdomen free from pain; still the patient recovered neither strength nor appetite. On the 6th everything changed; tongue red and dry. (Simarouba suspended; emollient ptisans.) On the 10th, fever gone; tongue moist and pale; purging returned. Simarouba again presented. On the 12th, purging stopped. On the 15th, simarouba suspended. Everything seemed to promise a recovery: yet the countenance continued very pale. No return of appetite or of the strength; a little fever observable particularly towards the evening. On the 16th, a great change took place in the state of the patient; extreme anxiety; acute abdominal pains, which were increased by the least pressure; pulse very small and frequent; skin very hot. Peritonitis was now present beyond all doubt. (Twenty leeches to the abdomen.) Abdominal pains less the following day; tumefaction of the abdomen, which presents an obscure fluctuation. From the 11th to the 24th, the abdominal pains ceased to be felt; the fluctuation became more and more manifest; and considerable ascites soon appeared. The pulse was feeble, but not frequent; two liquid stools took place in the twenty-four hours. (Blister to the legs; simple emollients internally.) On the 25th, the abdominal pain reappeared; extreme prostration; all the symptoms of approaching death set in, which took place on the 26th.

Post-mortem.—An abundance of reddish serum in the peritoneum, without an admixture of other flocculi, or any trace of false membranes, or any appearance of any inflammatory process whatever in the serous membrane, or in the subjacent cellular tissue.

On the lower fourth of the small intestine a considerable number of ulcerations were observed, the bottoms of which were brownish, and consisted of cellular tissue, hard and thickened; in several of them the bottom was on a level with the edges, and the tissue forming them appeared continuous with the mucous membrane. Was this commencing cicatrisation? Between these ulcerations, and even on their edges, the mucous membrane was white and very consistent.

The acute peritonitis in this case cannot be called in question, from the symptoms which indicated it during life; from the mere inspection of the dead body it might have been overlooked. For we find no other change in the peritoneum except an effusion of serum combined with a certain quantity of the colouring matter of the blood. This is what is observed in certain cases of simple ascites consecutive on a mechanical obstacle, and supervening without pain. Here then is a case wherein the nature of the symptoms throws more light on the real nature of the disease than is done by pathological anatomy; compare this case with those where, though no pain existed during life, pus, false membranes, etc., are found in the peritoneum.

Another disease was present in this individual at the time of his admission, namely, chronic inflammation of the intestinal mucous membrane; we should at least consider the diarrhœa under which this patient laboured for so long a time as being the result of this inflammation. We first gave simple emollients, narcotics, and then astringent tonics. During the administration of these medicines we observe the purging disappear no doubt, but only for a time. The stomach became irritated, as appeared from the redness of the tongue and the fever. This gastritis, which was probably occasioned by the simarouba, was

soon removed by suspending the use of this medicine. Then the purging reappeared; the astringent bark was again resumed, and it stopped it, nor did it afterwards return.

From the influence exercised at first by the tonic treatment on the cessation of the diarrhœa, one would naturally be disposed to think that this diarrhœa was not here connected with an intestinal inflammation, but that it depended rather on a state of atony of the mucous membrane, *that it was a species of passive flux*. The *post-mortem* examination proved that this was not the case. Over a certain extent of the intestine ulcerations were found to exist, which their appearance showed to be of long standing; but the absence of colour in the mucous membrane between them, indicates the absence of any previous reaction on the part of the ulcerations. This is the strict expression of the facts. If we now wish to deduce any consequence from them, we shall ask whether such a case does not seem to afford a proof that there are certain chronic inflammations which may be beneficially combated by others means than those that are simple antiphlogistics. We have already discussed this point of doctrine. Observe further, that it cannot be said in this case that the cessation of the purging was the result of the increase of the irritation of the intestinal mucous membrane: for if it had been so, we should have seen the abdominal pain become aggravated and fever set in; in a word, we should have observed that group of symptoms which manifest themselves when a chronic inflammation passes for a time into the acute state. But it was not so. We may ask, however, whether the irritation in the stomach, after the employment of the astringents, did not perform a part in the temporary disappearance of the diarrhœa. Neither shall we forget that even after the purging stopped, the continuance of the anorexia and of the general debility, as also the febrile movement, indicated an organic lesion which survived the diarrhœa. In this case we found an additional instance of a diarrhœa in which the cause of the intestinal flux resided solely in the small intestine, the large intestine having been found perfectly healthy. We may remark that the total anorexia which this patient experienced for a long time back could not be accounted for by any appreciable alteration of the stomach itself, which appeared to have suffered merely temporary irritation, at the time when the tongue became red and the fever increased.

CHAPTER II.

ACUTE PERITONITIS CURED.

Case 8.—Acute peritonitis, the first symptoms of which showed themselves during the paroxysm of an intermittent of the tertian type. He had had already five paroxysms, which presented nothing unusual, and during the intermissions he was in good health, when at the commencement of the cold stage of the sixth paroxysm he felt acute pains in the abdomen, which were increased by pressure and by motion. These pains continued during the cold and hot stage, and disappeared according as the sweating stage set in. Till the return of the next paroxysm these pains did not reappear; pressure on the abdomen did not excite them, but the patient was pale and more cast down than usual. The pain reappeared with the cold stage of the seventh paroxysm, but disappeared with the sweat as at first. Till then the intermittent fever had been left to itself. After the seventh paroxysm we began to give the sulphate of quinine in ten-grain doses. At the usual time the shivering reappeared with the abdominal pain; there were also two attacks of bilious vomiting. After having lasted only an hour, it ceased; but was not succeeded either by a hot stage

similar to that of the preceding paroxysms, nor by sweat; other symptoms much more alarming appeared; the abdominal pain continued to be very acute; the abdomen became tense; bilious vomiting came on every half hour, small at first, but very distressing to the patient. The face became shrivelled and pale, and the pulse very frequent. On the next morning there was no doubt of the patient been attacked with peritonitis. Leeches were ordered, and as there was constipation castor oil also was given in small and repeated doses. The leech bites continued to bleed all the day; he had five or six bilious stools. The next day the abdominal pains were felt only on pressing or moving, but then they were very acute; he could lie only on his back. Some nausea still, but no vomiting. Abdomen full and tense. Leeches applied every day for the three days following, and a blister to each leg. He was now in the sixth day of his peritonitis, and the pain had been decreasing every day, as also the frequency of the pulse. The skin, which was till now dry, was covered with a profuse sweat. On the 10th day he was convalescent.

We may here observe the evident success of the treatment employed. For four days an almost constant bleeding was kept up on the abdominal parietes, and before this a general bleeding had been adopted. The castor oil seemed to be very serviceable, and lastly, the blisters applied to the lower extremities, at a time when the inflammatory symptoms were much less acute, affected a useful revulsion, and accelerated, no doubt, the complete resolution of the peritonitis. Irritants applied to the skin as revulsives have certainly been very much abused; when employed too soon, or with persons of very irritable habit, or with very active sympathies, they have but too often aggravated the inflammation which they were intended to subdue. Instances of their danger occur in several parts of this work. But in many cases their great advantage cannot be called in question. It will be seen that in general blisters, applied to the lower extremities, at a distance from the seat of the disease, have appeared to succeed best.

Thus in cases of pleuritis, pneumonia, and pericarditis, it is to different parts of the lower extremities that we should apply revulsives, though there may be cases in which their application to the chest itself will be more useful. In cases of acute cerebral affection, the application of a revulsive to the nucha has scarcely ever appeared to be attended with advantage; with respect to blisters to the cranium, they have always seemed to have an injurious influence. On one occasion in a child who presented several symptoms of arachnitis, I observed a perceptible improvement on the day following the application of the blister. This was attributed to the action of the revulsive, when, on raising it, we found that the skin of the cranium had been but slightly reddened, but no blister had been raised. I once saw a large blister applied over the abdominal parietes of a person labouring under acute peritonitis, and a very marked exasperation of the symptoms followed. With respect to inflammations of the gastro-intestinal mucous membrane, the application of blisters over the abdomen in their acute state aggravates them in general; yet there are some exceptions to this; thus we have several times seen very profuse alvine evacuations, which came on suddenly, were accompanied with very little fever, and soon exhausted the patient very much, arrested by the application of a large blister to the abdomen. This same mode of treatment also is sometimes very efficacious in soon arresting chronic diarrhœa.

If this case is interesting with respect to the favourable termination of the disease, it is no less deserving of attention with respect to the onset of the progress of the peritonitis. Its first symptoms were intermittent, like those of the paroxysm of the tertian ague, in the middle of which they appeared. No doubt, during the cold stage, severe sanguineous congestion took place in the peritoneum, and disappeared as soon as the sweat announced the recall of the fluids

from the interior to the exterior. Was there this first time simple congestion in the peritoneum, or real inflammation of this membrane? the decision of this point appears to me of little importance, as I conceive these two states always tend to become confounded by imperceptible shades, as one may satisfy oneself by observing the different degrees of ophthalmia. The same symptoms of peritonitis uniformly reappeared in the succeeding paroxysm; they were still more marked than the first time, since they were accompanied by vomiting. It is probable that if the sulphate of quinine had been able to prevent the return of the following paroxysms, the peritonitis would have been removed with them; but such was not the case, and probably the quinquina was ineffectual for this very reason, that there was a predisposition in the system to a more serious disease; a new paroxysm reappeared with symptoms of peritonitis; here, however (and this was different from what we have observed at other times), the irritation of the peritoneum, whether it was more intense, or of a different nature, did not disappear; sweating did not terminate the paroxysm of fever, and it did not reappear till eight days afterwards: again coinciding with the favourable termination of the peritonitis. Then it announced its complete resolution, as, in the two last well defined paroxysms of intermittent fever, it had marked the termination of the abdominal pains. Here then is a striking instance of sanguineous congestion at first intermittent, like the febrile paroxysms with which it coincided, and replacing these paroxysms as soon as ever it became continued. Perhaps at the time of the third paroxysm, of which the first stage only was observed, if an attempt had been made to produce a powerful congestion towards the skin, either by a hot bath, by stimulant fumigations, or by various revulsives, we might have established the movement from the centre to the surface, and by exciting sweat, we might have cut short the peritonitis by producing artificially that which had been done by nature in the two preceding paroxysms. The quinquina then might have been administered anew for the purpose of preventing the return of the following paroxysms. In a preceding part of this work I have cited a case of pleuritis, the symptoms of which at first appeared only every evening. These facts seem to me to prove the possibility of intermittent inflammations; the fact is undeniable with respect to several cutaneous inflammations. There is at this moment in the hospital Saint Louis, under the care of Dr. Biett, an individual who, for the last two years, has had his skin covered every evening with an eruption, of which there is not a trace to be seen in the morning. This periodical affection has not yielded to quinquina. Two classes of these intermittent inflammations must be distinguished; some of them occur as mere complications during a paroxysm of fever; they are the result of a local congestion more intense than ordinary, and produce symptoms more or less serious, which disappear with the paroxysm; thence result those diseases called *pernicious fevers*. The disease now under consideration, Torti would have called *peritoneal intermittent fever*. Other inflammations also occur in an intermittent form, but isolated and separate, without being preceded or accompanied by shivering, or followed by sweating; in a word, without that group of symptoms which constitute a paroxysm of fever.

SECTION II.

CHRONIC PERITONITIS.

It is only by collecting and carefully perusing cases that one can make himself acquainted with the infinitely varying forms which chronic inflammation of the peritoneum may assume. They are cases, no doubt, where nearly the same

symptoms are observed as those which mark the existence of acute peritonitis; but at other times these symptoms disappear: thus, there are cases of chronic peritonitis which are painful only at their onset; there are others which never occasion the slightest pain, resembling in this respect certain cases of pleuritis, already alluded to in a preceding part of this work, which commence, become developed, and terminate in the formation of vast purulent collections, without the patient's having ever felt any pain. There are other cases of chronic peritonitis in which the abdomen retains its softness; and if there be at the same time no pain, the inflammation of the peritoneum must be almost necessarily overlooked. In certain cases the onset of the disease has been peritonitis; but at a subsequent period nothing is found but mere ascites. Owing to the varying disposition of false membranes, the abdominal parietes may present strange anomalies in their form; the fever may be continued, may exist only at intervals, or may not appear at all; chronic peritonitis again is found very much modified in its progress and in its symptoms by the different diseases which may complicate it, and which have their seat either in the abdomen, such as different affections of the digestive tube or liver, or outside this cavity, as diseases of the lungs or their appendages. In the peritoneum, affected with chronic inflammation, different accidental productions are frequently developed, and particularly tubercles; in this organ, better than in any other, can we trace the formation of those bodies, ascend to their etiology, and discover their nature. The different forms of chronic peritonitis being determined, it still remains to be ascertained what treatment is most applicable to them, and how this treatment should be modified according to circumstances.

CHAPTER I.

CASES OF CHRONIC PERITONITIS ACUTE AT THEIR ONSET.

Case 9.*—Very acute abdominal pain and frequent vomiting during the first ten days; afterwards, a disappearance of every sign of acute inflammation of the peritoneum—Collection of pus in the cavity of this membrane—Chronic entero-colitis.

A woman, forty-four years of age, felt, on the 21st of March, an acute pain, which, taking its origin at the hypogastrium, extended into the inguinal region. She then had nausea and vomiting. The application of leeches relieved her. Pressure, however, still excited pain in the abdomen, which still was tense; no return of strength. She remained in this state till the 16th of May, when her state was as follows: — flesh flabby and pale; marasmus; great debility; features drawn, and expressive of pain; abdomen enlarged, but soft; its parietes were so flaccid that fluctuation could not be perceived; painful only when pressure was made on the hypogastrium and flanks; tongue pale, and covered with a dirty yellowish coat; her ptisans excited nausea and vomiting; great thirst; no appetite; profuse diarrhœa for the last six weeks; pulse frequent and weak; skin hot and dry. All means for stopping the diarrhœa failed, and she died June the 1st.

Post-mortem. The peritoneum was filled with a brownish, sanious liquid, which separated the intestines from the abdominal parietes. Several of the intestinal convolutions were found to have formed adhesions. Numerous ulcerations were found on the termination of the small intestine and cæcum.

When this patient entered the Charité the symptoms of enteritis were much

* This case of chronic peritonitis, and the following, were acute at their commencement.

more marked than those of peritonitis. The abdomen did not present that tension and resistance usually observed when the peritoneum is inflamed. On the contrary, it presented that flaccid appearance met with in persons who have passed from a state of considerable embonpoint to that of great emaciation. Still the previous history, and the pain still occasioned by pressure, induced M. Lerminier to think that the inflammation of the serous membrane, by which the disease seemed to have commenced, was continued into the chronic state. The correctness of this diagnosis was confirmed by the autopsy. It was so much more the difficult, as the wasting of the patient, and the hectic fever which consumed her, were sufficiently accounted for by the existence of the chronic diarrhœa. It was one of those varieties of peritonitis which approach so very closely to ascites in their symptoms. The brownish colour of the liquid which filled the serous membrane is also deserving of our attention: it bore the greatest resemblance to the liquid which often fills the ileum. It was even our opinion, at first, that there had been perforation of this intestine, either at the last moments of life, or even at the time when the abdomen was opened, in consequence of handling the ulcerated portions of the intestine. Yet no solution of continuity was observed. A very active antiphlogistic treatment may sometimes arrest the progress of an acute peritonitis, and rescue the patient from death, but then the inflammation too often passes into the chronic state; and if the patient no longer complains of pain, if the abdomen is not very tense, the practitioner may at first fancy that a complete cure has taken place, but he will be cruelly undeceived when he finds that the patient's strength does not return, that some fever still continues, and that convalescence is prolonged to an indefinite period.

Case 10.—Abdominal pains at the onset; afterwards abdomen completely indolent—Tension of the abdominal parietes—Soldering (*soudure*) of the intestinal convolutions appreciable by manual examination through the abdominal parietes—Purulent effusions in separate compartments in the peritoneum—Rectitis.

A woman, twenty years of age, who had been delivered of her first child a year before entering the hospital, was in very good health, when one day, on leaving her bed, she felt an acute pain in the right flank, which was relieved, but not removed, by the application of leeches. For the following twelve days this pain was rather obscure, but at the end of this time the abdomen was tumefied and painful. She entered the Charité March 21st, when thirty leeches were immediately applied, which removed the pain. The next morning the abdomen continued tumefied, but free from pain, except in the hypogastric region, where pressure caused pain. Vomiting for the last three days; tongue natural; constipation; pulse very frequent and contracted; skin not hot. The usual remedies were resorted to, such as leeches, demulcent lavements, castor-oil, &c. From the 23d to the 28th, abdomen free from pain, but it became harder, and very tense and knobby (*bosselé*). On examining with the hand, we thought we felt the intestines soldered together, and forming but a single mass. Pulse frequent and weak; a little diarrhœa. From the 1st to the 22d of April, the peritoneal symptoms remained the same, but severe diarrhœa set in. The patient sunk imperceptibly, and towards the end of April the respiration became embarrassed, and she died.

Post-mortem. Intestines united by numerous small cellular bands, the latter circumscribing purulent effusions, so as to form, as it were, separate abscesses. the partitions of these abscesses were of a dark red colour; the cavity of the pelvis, the right iliac fossa, and the left flank, were filled with greenish pus. To the left of the uterus a purulent pouch was found large enough to hold an orange. The gastric mucous membrane was soft, and streaked with reddish lines in its

splenic portion. The mucous membrane of the rectum presented several red patches.

Three periods presented themselves in this disease with respect to the symptoms of peritonitis. At first we observed some pain, which was not accompanied by any morbid phenomenon, and which did not appear to indicate any thing serious; it was just such a pain, for instance, as oftentimes precedes the appearance of the menses in women. This symptom, however, light as it appeared, was, as it were, the precursor of the most serious phenomena. This pain, which appeared not connected with any thing particular, which was not so severe as to prevent her from attending to her usual occupation, became changed, after a certain time, into a pain which assumed all the characters of peritoneal pains, and it was only then the other symptoms of acute peritonitis became developed. These symptoms soon disappeared after a large bleeding, and then commenced the third period, when the disease of the peritoneum became chronic. It alone was no doubt sufficient to carry the patient to the grave; but her death was further accelerated by the profuse diarrhœa which set in. The organic change which kept up this was confined to the rectum. The lesions found in the peritoneum attest the chronic form of the inflammation of this membrane. We may remark those numerous bands, formed of a dense cellular tissue, which was already organised, though the disease was not yet of a very long standing. Those numerous abscesses are also deserving our notice, the parietes of which consisted of cellular bands. The numerous septa which confined the pus in so many distinct cells rendered it quite impossible to perceive the fluctuation.

CHAPTER II.

CASES OF PERITONITIS CHRONIC FROM THEIR ONSET.

Case 11.—Ascites coming on without pain—Œdema of the limbs—Turbid flocculent serum in the peritoneum—Scirrhus of the stomach and colon.

A man, sixty years of age, began to feel some disturbance in the functions of digestion two years before entering the Charité; he had never felt any pain in the epigastrium, and about seven months before the period we saw him, he began to vomit. When we saw him, he was in a state of marasmus; face very pale; most of the food which he took was vomited a few hours after being taken. Complete anorexia; much acrid eructation; tongue covered with a thick yellowish coat; obstinate constipation. Leeches were applied to the epigastrium, with some benefit. Some days after a *moxa* was placed on it. The gastric symptoms at first improved. The vomiting was diminished, but the abdomen soon began to swell, and peritoneal effusion became manifest. About a month after the ascites, the lower extremities became œdematous; no fever. He became weaker every day, passed but little urine, never perspired; tongue, which for a long time had a healthy appearance, became red and dry; pulse frequent and very small; an adynamic state set in, and he died. The abdomen had never been painful.

Post-mortem. Turbid serum in the peritoneum, containing albuminous flocculi, which were found in great quantity towards the left hypochondrium. Gastric mucous membrane injected towards the great cul-de-sac; two fingers' breadth on this side of the pylorus this membrane no longer existed. The ulcer resulting from this was formed of thickened and indurated cellular tissue (scirrhus). The muscular coat of this part had also disappeared. The pylorus

was very much contracted, and could not admit the end of the little finger. About three inches in length and one in breadth of the mucous membrane of the transverse colon was puckered. Beneath it the cellular tissue presented a scirrhous appearance, like that of the pylorus.

The lesions found in the dead body leave no doubt that peritonitis existed in this case. Still this inflammation was not announced by any pain either at its onset or in its course; everything inclined one to think that the tumefaction of the abdomen was the result of simple, or what is called essential ascites. This peritonitis thus free from pain supervened, as a complication towards the latter period of the affection of the stomach; this latter, which was essentially chronic, repassed into the acute state a few days before the patient's death. With this acute state, the intense redness of the gastric mucous membrane was connected, and also the sudden change of the appearance of the tongue, which, having been natural till then, became red and dry. At the same time that this symptom of acute gastritis became developed, the prostration made rapid progress; and the adynamic state, in which the patient died, appeared in this case to be the result of the acute inflammation of the stomach, supervening on a chronic disease of this viscus.

SECTION III.

PARTIAL PERITONITIS.

I have elsewhere spoken of partial inflammation of the pleura, and we have seen how much the symptoms of this form of inflammation of the thoracic serous membrane differ in certain respects from those of general pleuritis, and how important it is to obtain a correct knowledge of them. The same reflections apply to partial peritonitis. Though common enough, particularly in the chronic state, they have hitherto been but very superficially studied; and yet what can be more deserving of attention than the different groups of symptoms, whether local or general, to which they give rise? what more delicate than their diagnosis in many instances? There are cases of peritonitis, which, from their deep seat, are announced only by pain, acute or dull, continued or intermittent, without the presence of any tumour appreciable during life, without any change in the form of the abdominal parietes, or diminution of their natural softness. Other cases of partial peritonitis compress, displace, and irritate the organs in the vicinity of the portion of inflamed peritoneum, and the most prominent morbid phenomenon to which they give rise, is a greater or less disturbance in the functions of these organs, so that one supposes the latter to be affected, whilst their investing membrane alone is diseased. At other times, in consequence of their more superficial seat, circumscribed peritoneal inflammations produce tumours appreciable to the sight and touch. These tumours, which vary infinitely in their situation, form, size, and relations, are often considered as appertaining to the different organs which they happen to be nearest. The mistake is particularly liable to be committed when the functions of these organs are at the same time more or less disturbed. With respect to the general symptoms, they are not at all constant. Thus the fever may be none, intermittent or continued; nutrition may remain intact, or become deteriorated, and thus marasmus supervene. In many of these cases of partial peritonitis, the local symptoms are the least marked; there is neither pain nor tumour, nor marked disturbance in the functions of the different abdominal viscera. But the individuals waste away, they feel an habitual illness and indisposition, for which

they cannot account; paroxysms of fever supervene; as in every sick person, the nervous system becomes sensitive; we observe in the functions of this system several anomalies, which we cannot account for. It is then that the primary cause of all these symptoms is referred to this same nervous system, whilst in reality it is affected only sympathetically, and altogether secondarily. How many such diseases, a long time considered as mere neuroses, then become serious organic diseases! They were so from the commencement; but, on account of the absence of the local symptoms, their nature must unavoidably be mistaken. Such is the case with several hypochondriacs. Their sufferings are considered imaginary, and still it is true that, in the greater part of these, the strange phenomena observed, and which are very properly referred to disturbance of the nervous functions, have their point of departure in a more or less latent affection of some organ. That minute attention which they pay to their health, that extraordinary tendency to exaggerate every the least suffering, is it not a mode of giving expression, as one may say, to the habitual indisposition which they experience, which is but too real, and which we are always disposed to deny, because we cannot discover the cause? The partial inflammations may attack the following structures: 1st, The great epiploon; 2d, The peritoneum of the hypochondria and flanks; 3d, That of the cavity of the pelvis.

CHAPTER I.

EPIPLOITE.

Case 12.—Acute epiploitis causing death in an individual labouring under a chronic affection of the stomach and liver.

A man, sixty-four years old, entered the Charité in the middle of January. He presented the symptoms of chronic gastritis, and moreover the liver passed several fingers' breadth below the cartilaginous edge of the ribs of the right side, and formed a tumour in the hypochondrium painful to the touch. He remained in this way till February 17, constantly becoming weaker; on this day he had some vomiting and an acute pain over the anterior wall of the abdomen. On the 18th, pain continued; the recti muscles were very tense and contracted. He died on the 22d.

Post-mortem. The abdominal parietes being raised, we found extended in front of the intestines a reddish body five or six lines in thickness, readily torn, and then allowing a sero-sanguinolent fluid to ooze from it; it was attached superiorly to the transverse colon, terminating inferiorly in a free edge, not far from the pubis, its lateral edges being equally free. This body was evidently the great epiploon reddened and swollen by acute inflammation, which had been announced by the ordinary symptoms of every acute inflammation. Cancerous masses were found in the liver, and scirrhous induration of the walls of the stomach in its pyloric portion. The mucous membrane also was thickened and of a slate colour.

In another case I saw a considerable tumour developed in twenty-four hours around the umbilicus in a person affected, as in this case, with disease of the liver; he also died rapidly. On opening the body, we found that the tumour detected during life was formed by the epiploon, considerably swollen, and discharging, when torn, a bloody fluid. The numerous alterations of which the great epiploon may become the seat, may have their origin in an acute inflammation like the preceding; but in several cases it is never in an acute form, but

gradually and imperceptibly, that these changes are produced. Thus we may find it either merely tumefied and gorged with liquid, or really hypertrophied, or indurated and scirrhous, or transformed into fibrous tissue. In its interior, and with one or other of the preceding alterations, either pus may be secreted, and scattered through it, or collected into an abscess or tuberculous matter. The adipose vesicles, which it contains in great numbers, may present themselves under the form of small hard granulations, which seem to be fat modified in some way, as we may satisfy ourselves by examining the successive grades through which it passes, in order to take on the appearance of these granulations, which are again one of those lesions very vaguely designated by the name of *cancer*.

According as it is developed, undergoing one or more of the alterations now mentioned, the great epiploon may be modified in its form, so as to constitute tumours varying in every way with respect to their size and appearance. These tumours may be often readily taken for the stomach, the parietes of which are thickened and indurated ; this happens principally when the great epiploon increases in size, and forms a tumour only in the part which extends from the great curvature of the stomach to the colon. It then often represents a sort of puffy tumour (*bourrelet*), of more or less thickness, which throws back the arch of the colon, and borders the stomach. When felt through the abdominal parietes, this puffy tumour, with a smooth or uneven surface, must be taken for the stomach ; according to the degrees of development of the gastro-colic epiploon, manual examination may induce us to think that the stomach itself forms a tumour, either through the entire of its body, or in the great cul-de-sac, or in its pyloric portion. In such cases I have seen the mistake become so much the more inevitable, as with this tumour there co-existed symptoms of an organic affection of the stomach. At other times, on the contrary, digestion continues to go on, and then these tumours of the gastro-colic epiploon may continue for a very long time, without perceptibly disturbing the system. At other times again, without there being any disturbance of the digestion, the morbid state of the epiploon reacts sympathetically on other organs, modifies the circulation, and by itself produces the hectic fever and death. All these differences depend, no doubt, 1st, on the relations of the tumour to the stomach ; 2dly, on its anatomical composition ; 3dly, on the individual predisposition of the patient, whence are produced functional disturbances of the most varying description under the influence of one and the same lesion. If the great epiploon be tumefied principally on its left portion, the tumour which it forms may then resemble the enlarged spleen in its situation, its direction, and its relations.

CHAPTER II.

PARTIAL INFLAMMATION OF THE PERITONEUM, FLANKS, AND HYPOCHONDRIA.

Cellular bands uniting the diaphragm and convex surface of the liver, are often found on the dead body. They are also occasionally found between the spleen and the part of the abdominal parietes with which its external surface is connected. At the same time there is frequently no trace of inflammation on the rest of the peritoneum. In most of the cases where the autopsy discovers this partial peritonitis, which we might call perihepatic or perisplenic, we know not whether during life they produced any particular symptoms. On this point I have observed the two following facts : — In two cases where close adhesions

united the liver and diaphragm, the previous history of the patients informed us that several years before we saw them they had had jaundice. Liver in its normal state. In a third case, jaundice was developed in a patient during his stay in the hospital, as a complication of another affection (cerebral congestion with fever). Death took place on the ninth day after the appearance of the jaundice. The patient had never complained of pain in the site of the liver. At the autopsy we found interposed between the liver and the diaphragm rudiments of pseudo-membranes, soft, whitish, and unorganised, which were evidently of recent formation. The duodenum was not altered. As traces of the primary disease, we found numerous ulcerations at the end of the small intestine and in the large intestine. If we have elsewhere admitted that simple diaphragmatic pleuritis may occasion jaundice by irritating the liver sympathetically ; *à fortiori* it must be admitted, that jaundice may be the result of inflammation of the portion of the peritoneum surrounding the liver, just as inflammation of the pleura occasions cough by irritating sympathetically the pulmonary parenchyma and the bronchi.

Another patient complained of frequent pains of long standing in the right hypochondrium ; he never had had jaundice. After death we found the capsule of Glisson very much thickened, and cellular bands extending, on the one hand, between the convex surface of the liver, and the diaphragm ; and on the other hand, between the liver and arch of the colon. An individual laboured under a double cancer of the liver and stomach of which he died. Some cellular adhesions connected the liver to the diaphragm, and to the anterior abdominal parietes, behind which it was felt during life. There was this remarkable circumstance in this person, that he suffered principally in the hepatic region when he walked down stairs ; is it because the cellular bands which connected the liver to the diaphragm underwent a painful dragging? Now it might be asked, why, the same adhesions existing around the liver, in one case they are not announced by any symptom, in another case they are painful, and in a third they produce jaundice? But we can only answer this by citing analogous cases, and showing that there is no constancy in many of the symptoms which mark acute or chronic inflammation of the other serous membranes ; thus pleuritis may exist with or without pain, with or without cough ; thus pericarditis, whose invasion is oftentimes announced by so characteristic a pain, may be unaccompanied with pain at its onset, and remain so whilst it lasts ; it may occasion the most varied modifications in the heart's contractions, or not at all derange them ; thus meningitis, its seat being supposed the same as also its severity, sometimes produces delirium, and sometimes leaves the intellect intact ; it may or may not be accompanied with headach, etc. In the vicinity of the liver, spleen, and kidneys, tumours are often developed, which result from the imprisonment of a certain quantity of liquids of various kinds by false membranes, which form the parietes of the pouch, and which are the result of partial inflammation of the abdominal serous membrane. These false membranes have in general nothing regular in their mutual arrangement ; they usually produce within the pouch, whose parietes they form, bands, complete or incomplete septa which divide it into several compartments. At other times they are raised, if I may so say, to a higher grade of organisation : the inner surface of the parietes of the pouch then presents a regular appearance, smooth or areolated, as it is found in natural cavities ; this pseudo-membrane, which was at first but an amorphous product, but still organisable, becomes changed into a cellulo-vascular membranous tissue, which itself sometimes puts on the appearance of a serous or mucous membrane. Then the most varied secretions may take place in it ; and thus we may conceive how within those encysted tumours, such different liquids are found, serum, pus, and its numerous varieties ; blood, other products which have not yet received any especial name, resembling animal jelly, honey, soot, etc. Hydatids also have been met therein.

CHAPTER III.

PARTIAL INFLAMMATION OF THE PERITONEUM OF THE CAVITY OF THE PELVIS.

This kind of partial peritonitis is remarkable, both by reason of the frequent obscurity of its diagnosis, and in consequence of the symptoms to which it gives rise. The cases belonging to it I shall range in two classes: in the one those cases shall be found, in which the inflammation of the pelvic peritoneum during life produced no tumour appreciable to the touch; the second class shall include the other cases where there was a tumour which could be detected through the abdominal parietes. This tumour being ascertained, the task of the observer is not finished; he must determine its nature, he must ascertain whether it belongs simply to the peritoneum, or to one of the pelvic organs, a perfection of diagnosis which it is not always possible to attain. There is a certain number of chronic inflammations of the pelvic peritoneum, which are only announced by the pain and wasting of the patient. It is evident that neither of these signs can serve to discover the nature of the affection which causes them. The pain is seldom very acute: in some it is continued; in others it returns only at intervals, and its return seems to be connected with some temporary exasperations of the peritonitis. In some cases, where there was no other local symptom but this pain, and where at the same time the general nutrition was not very much altered, it has been improperly considered as the product of a neurosis. I have had an opportunity of seeing a case of this kind. The subject was a young woman, who, after a first confinement, continued to suffer a pain, which had its seat in the hypogastrium behind the ossa pubis, and which appeared only in an intermittent form, like a neuralgia. When it reappeared, it was confined to the place already mentioned, and was but slight; but at times it became lancinating, and extended as it were by irradiation towards the neck of the uterus, superiorly towards the parietes of the abdomen, and posteriorly in the lumbar region, where she said that she felt pain like those which are felt at a certain period of child-birth. Such was the account which she gave us when she entered the Charité. Did not this affection now described resemble a neuralgia? But when she came under our observation, it was no longer so simple an affection. For the last month the pain had become continued; it was, however, less severe than when it existed only at intervals. Pressure on the hypogastrium was painful; the rest of the abdomen was soft and free from pain. There was perceptible emaciation, slight continued fever, and frequent sweats. We thought that there existed a chronic affection of one of the ovaries, or of one of the portions of the peritoneum surrounding them. (Leeches; emollient and narcotic fomentations over the hypogastrium.) This state continued for the next fifteen days; then profuse diarrhœa set in. The entire abdomen became tense and painful; she sunk rapidly and died. The autopsy detected in the peritoneum traces of recent acute inflammation, which the tension and general pains of the abdomen had announced for some days before death (morbid serum with a mixture of amorphous fibrinous flocculi). The principal part of the internal surface of the large intestine, as well as that of the end of the small intestine, were very much injected, a lesion which was in accordance with the diarrhœa, which supervened towards the termination of life. These changes sufficiently accounted for the new symptoms which, added to the primary disease, accelerated the fatal term; but what was the cause of the old hypogastric pain? We found it to reside in a tumour the size of a small orange, deeply seated in the cavity of the pelvis; it was so posited there, that

its right half lay between the body of the uterus and the rectum : whilst its left half, concealed anteriorly by the broad ligament, passed laterally beyond these two organs. This tumour contained a cavity separated into several incomplete apartments, in each of which a purulent liquid was found. Its parietes were formed of false membranes, lying one upon the other, evidently formed within the peritoneum. Thus this pain, which had for a long time assumed the character of a neuralgia, and only at a later period appeared to be connected with a chronic inflammation, was referrible to an inflammation confined to a small portion of the pelvic peritoneum which set in imperceptibly after her confinement. This inflammation, circumscribed as it was, became, however, after a certain time, a sufficient cause of fever and gradual wasting. In another woman I observed the same species of pain, accompanied with the same series of symptoms, and which also came on after a first confinement. However, after she had been suffering for eight months, all the symptoms disappeared, and she recovered perfect health.

Tumours similar to that now described may be situate or developed so as to compress the organs which they touch, to impede for instance the course of the fæces or urine. I have seen a case where, as a cause of a constipation of very long standing with progressive wasting, there was found in the cavity of the pelvis a large pouch full of pus, developed in the peritoneum with hard parietes, and as it were fibrous; it occupied the place of the rectum, which, being flattened on it like a riband, deviated considerably to the right, and was no longer connected with the sacrum. The parietes of the intestine were not altered; but it is hard to think that if the individual had lived for a longer period, the rectum would not have undergone some lesion of texture, compressed and irritated as it was by the pressure of the tumour which had displaced it. It might then have happened that by means of a fistula set up between the cavity of the tumour and that of the rectum, the pus would have been discharged by the anus, and a cure would have been effected. One would have thought during life that there was scirrhous hardening of the parietes of the rectum.

I have seen another case in which the cavity of the bladder was almost entirely effaced by the pressure of a tumour, in which was a cavity full of pus and of debris of hydatids. Being developed between the bladder and rectum, it had pushed the posterior wall of the former before it so much, that this wall almost touched the orifice of the urethra. The two ureters being distended by a great quantity of urine, had nearly acquired the size of a small intestine.

These different species of partial peritonitis exist less frequently alone than as a complication of certain affections of organs contained in the pelvis, and particularly of the uterus and ovaries. Thus, in some cases of chronic metritis, we find around the uterus one or more abscesses, which are evidently seated in the peritoneum.

Partial inflammations of the pelvic peritoneum, which have occasioned purulent depositions, circumscribed by false membranes more or less organised, have in general a fatal termination. Death may follow the constantly-increasing wasting of the patient; a striking proof of the fatal influence exercised over nutrition and life by a chronic inflammation of small extent, and which is not seated in any important organ. *A priori*, one would not suppose that anything serious could result from the collection of a small quantity of pus, in the midst of false membranes partially secreted by the peritoneum, the rest of this membrane remaining intact, and no other organ being affected. But if this partial inflammation is sufficient to disturb the circulation, to alter nutrition, to deprive the individual of his physical and moral energy, it seldom happens that it proves fatal by itself. Death generally supervenes, when, after the exhausted state into which the patient has already fallen, a new inflammation sets in: sometimes it is the peritonitis, which, from having remained partial for a long time,

suddenly becomes general; sometimes different organs come to be affected, and particularly the lungs or digestive tube; for the peculiar facility with which these two organs, and principally the latter, come to be attacked with inflammation, in the course or towards the end of every chronic disease, is a very remarkable circumstance. It is much more frequently by these complications, than by the chronic disease itself, that the patient is carried off.

The pus collected in any part of the cavity of the pelvis sometimes makes its exit externally, and then either a cure is effected, or the suppuration still continuing, and the inflammation not ceasing, the disease terminates fatally. A woman had, in the right side of the hypogastric region, a large hard uneven tumour, somewhat painful. During the three first months of her stay in the hospital this tumour remained stationary. After this she passed, for the first time by stool, a great quantity of purulent matter. On the following days she passed more; then the purulent discharge ceased, but afterwards it reappeared several times. From the first day that this discharge of pus took place the size of the tumour diminished; it then remained stationary again. The patient found herself better, and left the hospital.

It is probable that the purulent stools which this woman had were connected with the hypogastric tumour, and that it was the matter contained in this that made its escape through the rectum; for, when pus is secreted by the mucous membrane of the large intestine, it never makes its exit by the anus in such large quantity; and farther, it must not be forgotten that this discharge of pus coincided with a sudden diminution of the size of the tumour.

Are these cases where the pus collected in some part of the pelvic peritoneum may be reabsorbed, pass into the veins, then be eliminated from the mass of blood, either gradually and imperceptibly, or so as to form purulent depositions within the substance of different organs. On this point we shall submit to the reader a curious fact, in whatever manner he may please to interpret it.

A woman died in the Charité a little time after her accouchement. Her labour had been extremely difficult. During her stay in the hospital she presented two different periods. The first was characterised by dull pains in the hypogastrium, continued fever, with profuse sweats every night; rapid wasting away. The second period was marked by a state of prostration, which did not set in gradually, by a sudden alteration in the features, some delirium, and profuse diarrhœa. This second period was short, and was soon followed by death. At the autopsy the following lesions were found: — first, a state of engorgement, and softening of the tissue of the uterus; secondly, around this organ several purulent collections inclosed in compartments, the parietes of which consisted of false membranes intercrossing in different directions; thirdly, a little serum, which was slightly turbid, effused into the rest of the peritoneum; fourthly, considerable injection of the end of the ileum, cæcum, and commencement of the colon; fifthly, a more uncommon lesion, to which I particularly call attention at this moment. A great number of veins, situate in the cavity of the pelvis, struck us by their state of distention; they were filled with coagulated blood, with which a whitish liquid was mixed in the form of drops scattered to and fro, which the persons present at the autopsy compared to pus. The parietes of these veins presented no appreciable alteration. The blood contained in the primitive iliac vein, and in the vena cava inferior, presented the same appearance. Nothing similar to this was found in the right cavities of the heart, nor in the remainder of the circulatory apparatus. But in cutting into the right lung, which, when viewed externally, appeared very healthy, its parenchyma was found to be compressed in three different points by collections of pus occupying a space, which, for two of them, might contain a walnut, and for the third a hazel-nut. Around these abscesses the pulmonary parenchyma presented no appreciable alteration. In the liver another abscess was found, which, like those of the lung, existed with-

out any lesion of the parenchyma around it. Lastly, in the brain, on the level of, and external to the optic thalami, we found another abscess, the size of a large hazel nut, which was not accompanied by any injection, nor by any softening of the surrounding cerebral substance.

I have observed other facts similar to the preceding with respect to those purulent collections found simultaneously in different organs without any trace of inflammation of the latter. It is principally after capital surgical operation, difficult labours followed by metritis, and suppurations a long time kept up, that I have seen such cases. In the particular fact now under consideration, does it not appear that the pus, primarily formed in the cavity of the pelvis, was absorbed, carried into the veins where it was found, intimately mixed in the heart with the rest of the blood, where it was no longer possible to perceive it, then deposited in the parenchyma of the lung, liver and brain. In the same manner as in experiments on animals, we see several substances introduced into the cellular tissue become mixed with the blood, and separated from it on the surface, or in the parenchyma of different organs.

PARTIAL INFLAMMATION OF THE SUBPERITONEAL CELLULAR TISSUE.

We shall now speak of those inflammations after the different cases of partial peritonitis which have been described, as this will in fact serve as a complement to their history. First, the symptoms of most of the affections of the subperitoneal cellular tissue are confounded with the symptoms of the diseases of the peritoneum itself; in the next place, the researches of MM. Ribes and Gendrin show that there is but little difference, with respect to texture, between the peritoneum, properly so called, and the cellular tissue subjacent to it, and that it is beneath this cellular tissue that several of the physiological or pathological phenoma take place, whose exclusive seat is ordinarily placed in the thin membrane called peritoneum.

Case 13.—Tumour developed beneath the gastro-hepatic epiploon, which, by reason of its situation, and the symptoms produced by it, might be taken for a tumour of the liver and stomach—Jaundice.

A mason, seventy-one years of age, fell on his loins in the month of July, and was obliged to keep his bed for some days; he then resumed his ordinary occupation. In the October of the same year he began to feel slight and temporary pain in the right portion of the epigastrium. This pain became, by degrees, more severe and continued. At the same time he lost appetite; he vomited some acid liquids; there was constipation; diminution of strength; emaciation; gradual development of a tumour in the right hypochondrium. On the 25th of December he entered the Charité, and presented the symptoms now mentioned. To the right of the epigastrium there was a tumour which extended about five fingers' breadth below the edge of the ribs; it was globular, immoveable, and very painful on pressure. The face presented a marked straw-coloured tint; appearance of the tongue natural; pulse weak, not frequent; skin dry and rough. December 28th, a very marked jaundice tint on the conjunctivæ and over the entire skin. 29th, some disturbance in the intellectual functions; face very much altered. He sunk rapidly, and died on the 1st of January.

Post-mortem. The abdominal parietes having been raised, we observed, towards the right of the epigastrium, a tumour which was about the size of two fists put together; it was circumscribed inferiorly by the small curvature of the stomach, connected superiorly with the left lobe of the liver and diaphragm, posteriorly resting on the aorta. It adhered firmly to the diaphragmatic edge and posterior surface of the stomach, and projected considerably into the interior of

this organ at its pyloric portion. No morbid change in the structure of the stomach. This tumour consisted of scirrhous and encephaloid tissues in the crude state, with deposition of tuberculous matter in some points. This tumour did not seem to press on the biliary ducts. The first portion of the duodenum was healthy, but the other two portions of this intestine presented intense redness. The orifice of the ductus choledochus was marked by a red tubercle much more prominent than usual. In the first convolutions of the jejunum the traces of inflammation disappeared gradually.

This individual presented, during life, all the rational signs of an organic affection of the stomach, and it was natural to consider the tumour as connected with this organ. Yet this diagnosis was not just. The stomach was healthy, but the compression to which it was subjected by the tumour developed in its vicinity; the obliteration of a portion of its cavity by this tumour, sufficiently account for the different symptoms of chronic gastritis which the patient presented. With respect to the origin of this tumour, I shall merely remark, that it is possible that the fall on the loins, that is to say, an irritating cause, contributed to produce it; and with respect to its nature, I consider it as the product of hypertrophy and induration of the cellular tissue. There was no lesion of the liver or encephalon to account for the new symptoms which appeared during the termination of the patient's life, namely, the jaundice and cerebral phenomena. There was very well marked inflammation of the duodenum, with tumefaction of the mucous membrane around the orifice of the duct for the excretion of bile.

Case 14.—Abscess in the psoas muscle, with the destruction of the periosteum of the vertebræ in contact with the pus—Ascites.

A painter, forty-five years of age, had several times undergone treatment for lead colic in the Charité. He came to the hospital again complaining of abdominal pain, which he referred as usual to his handling preparations of lead; but we were soon convinced that they were referrible to another cause. Here, in fact, was what we ascertained: four months previous to his entering the hospital this person began to feel in the lumbar region, particularly in the left, a deep-seated pain, which was not increased by pressure, but which was increased by walking and by different movements of the trunk. During the first three months he continued his usual occupation, though with considerable pain; but after this time the lumbar pain extended to the abdomen; walking was now impossible, and soon after the abdomen began to swell. When we saw him he evidently had ascites; the two lower extremities also were infiltrated as well as the scrotum, face pale and emaciated as well as the upper extremities; pulse frequent, skin hot. The left thigh immoveable and semiflexed; when he attempted to move it the pains in the abdomen and loins, on the left side, became very intense; he could raise it on the contrary without increasing the pain. He sweated profusely every night; had had a cough for some months, and expectorated greenish and opaque sputa. He remained three months in the hospital without any improvement; then a large eschar formed on the sacrum, which nothing could arrest; one of the thighs was attacked with erysipelas; the patient fell into an adynamic state, and soon died. During the last period of his life, his expectoration resembled that of consumptive patients; in the midst of a fluid like gum-water, greyish flocculi were suspended.

Post-mortem. A considerable quantity of limpid serum in the peritoneal cavity. There was nothing, anatomically speaking, to indicate that this ascites had succeeded peritonitis. Beneath and outside the layer of peritoneum, which is reflected from the kidneys over the left side of the vertebral column to form one of the folds of the mesentery, there was an enormous collection of pus. It occupied the place of the psoas muscle, of which a few scattered fibres only

were found, which terminated inferiorly in its tendon, which still continued intact. The pus was in immediate contact with the body of the vertebræ, which were stripped of their periosteum and rough. Some pus was also found beneath the crural arch; a great quantity of it between the muscles of the inner part of the thigh. The mucous membrane of the stomach was of a slate colour. The rest of the digestive tube was slightly injected in some points. The bronchi were red, the pulmonary parenchyma was engorged, but contained no tubercles. The gangrenous ulceration of the skin of the sacrum had exposed a part of this bone.

This case presents an instance of a disease some years ago called psoitis. It appears to me at least doubtful that the disease commenced by an affection of the muscle itself. We scarcely ever see mere muscular rheumatism terminate in suppuration; that which occurred in this case appears rather to have had its origin in inflammation of the sub-peritoneal and intermuscular cellular tissue of this part, which had gradually set in. It was for a long time announced by no other symptom than lumbar pain. The destruction of the psoas muscle, in the middle of which the pus was found, was not consecutive on the inflammation of the cellular tissue, its fibres disappeared by little and little, as the periosteum of the bodies of the vertebræ did. The immobility of the thigh of the affected side, the extreme pain produced by every attempt to move it, have been noticed as symptoms of psoitis; these phenomena were very well marked in this patient. The ascites, and infiltration of the scrotum and lower extremities, were consecutive on the sub-peritoneal abscess. Did they depend on it? At least no other cause was found to which they could be attributed. I have stated elsewhere what importance should be attached to the characters of the sputa in order to diagnose the existence of pulmonary tubercles. Here we observed for several days those flocculent sputa, which some persons consider characteristic of phthisis, and yet there was nothing here but simple chronic bronchitis. This had been in existence for a considerable time, and yet no tubercle was formed in the lung; there was not then any disposition to tuberculous secretion; which was strictly in accordance with the nature of the pus formed under the lumbar peritoneum; it was creamy, homogeneous, and not separated into lumps, more or less serous, as it is generally found in persons disposed to tubercles; so true is it that the local action which produces tubercle is connected with a general disposition of the solids and fluids, which manifests itself by remarkable modifications in the process of nutrition and secretion.

THE END.

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